

BOROUGH OF NEWCASTLE-UPON-TYNE.

R E P O R T

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of Newcastle-upon-Tyne,

WITH

TABULAR RETURNS, DIAGRAMS, &c.,

OF THE

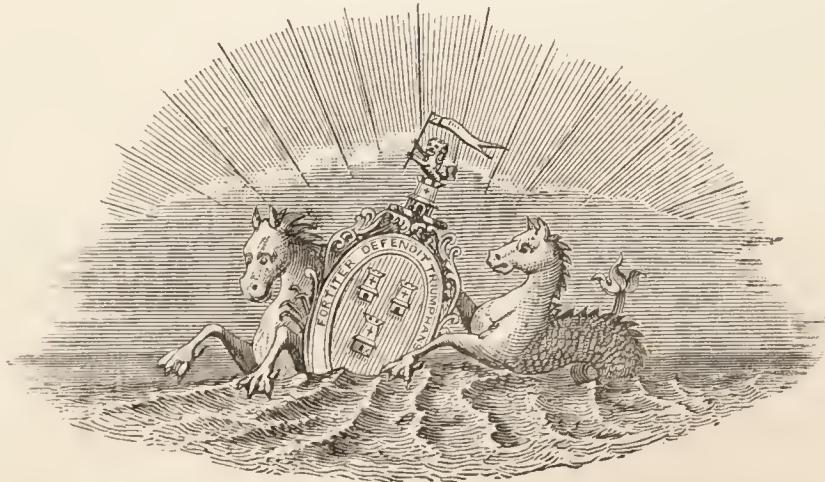
SICKNESS AND MORTALITY

DURING

THE YEAR 1878.

—0—

PRESENTED TO THE SANITARY COMMITTEE 23RD APRIL, AND ORDERED
TO BE PRINTED ON 4TH JUNE, 1879.



Newcastle-upon-Tyne:

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TO THE MEMBERS OF THE URBAN SANITARY AUTHORITY OF
NEWCASTLE-UPON-TYNE.

GENTLEMEN,

I have the honour to present herewith my ANNUAL REPORT for the year 1878.

The Report consists of four divisions, viz, :—

A.—STATISTICAL TABLES of Sickness, Mortality, Births, and Marriages.

B.—ADVICE GIVEN during the year on matters affecting the Health of the Borough.

C.—ACTION TAKEN thereon.

D.—OBSERVATIONS and RECOMMENDATIONS based on the experience of the year.

I am, Gentlemen,

Your obedient and faithful Servant,

HENRY E. ARMSTRONG, M.R.C.S.,
MEDICAL OFFICER OF HEALTH.

*Health Department,
Town Hall, Newcastle-upon-Tyne,
12th April, 1879.*

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BOROUGH OF NEWCASTLE-UPON-TYNE.

REPORT 1878.

(A.)—STATISTICS.

DURING the fifty-two weeks ended 28th December, 1878, 5,484 births and 3,423 deaths have been registered in the Borough. The births represent an annual rate of 38.8, and the deaths an annual rate of 23.7 per 1,000 population at all ages, as estimated by the Registrar General to the middle of the year.

The birth rate shows a decrease of 0.6, and the death-rate an increase of 1.4 per 1,000 population, as compared with the rates of 1877.

The mean annual birth-rate during the five last preceding years is 41.1, and the mean death-rate 26.1. Decrease in number of births has taken place in the sub-districts of Westgate and All Saints' (93 and 78 respectively); the number is almost stationary in St. Andrew's and St. Nicholas'; and there is an increase of 60 registered births in Byker. The rates of births in each of the different registration sub-districts per 1,000 population, estimated as compared with the corresponding rates for the preceding year, are as follows:—Westgate, 36.1 against 38.4; St. Andrew's, 27.8 against 28.8; St. Nicholas', 30.8 against 29.7; All Saints', 36.1 against 39.0; and Byker, 60.9 against 59.4. The comparatively high rate in the last named district is, however, largely due to evident under-estimate of population and consequent error (increase) of all calculations based upon it, which cannot be rectified until next Census.

The rates of mortality in the different sub-districts are as follow:—Westgate, 20.6 against 21.2 in the preceding year; St. Andrew's, 20.2 against 17.4; St. Nicholas', 36.4 against 37.3; All Saints', 21.5 against 20.4; and Byker, 32.6 against 25.7. The rate in Byker is again to a great extent, though, as will afterwards appear, not entirely, the result of under-estimate of population. The rate in St. Nicholas' sub-district is increased by 129 deaths in the Infirmary, of which 63 were those of patients admitted from beyond the Borough, and by 12 in the Fever Hospital.

The rates of death from all causes per 1,000 per annum in the Borough during the successive quarters of the year have been :—First quarter, 23·2; second quarter, 22·0; third quarter, 25·4; fourth quarter, 24·1. The first two of these rates are below the average of the 23 “large English towns,” as well as those of the corresponding periods in 1877; the rate for the autumn quarter is above the average of the large English towns, and considerably above the corresponding rate of last year; in the winter quarter the rate is below the average of large towns, but above the corresponding rate of the previous year.

The deaths from all causes average a weekly number of 65·8, against an average of 61·1, during each of the two last preceding years. The three weeks in which the highest mortality has been recorded are those ended July 3rd, August 24th, and December 28th, the numbers of deaths registered in those weeks being respectively 95, 94, and 97. The three weeks in which the lowest mortality has been recorded are those ended April 13th, June 22nd, and July 6th, when the respective numbers were 53, 47, and 42. The weekly range has extended both higher and lower than in the preceding year.

Comparison of the weekly mortality of the different quarters of the year yields the following :—

1878.	Number of Weeks with Deaths above the Average of the Year.	Number of Weeks with Average Number of Deaths in the Year.	Number of Weeks with Deaths below the Average of the Year.
First quarter	5	1	7
Second quarter.....	3	...	10
Third quarter	7	...	6
Fourth quarter.....	6	...	7
Entire Year	21	1	30

ZYMOTIC DISEASES.

The rate of mortality from the seven chief Zymotic Diseases, viz.:—Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, “Fever” (including Typhus, Enteric, and Continued Fevers), and Diarrhœa, is 4·4 per 1,000 population (estimated), as against a rate of 2·4 for each of the two last preceding years.

The entire Miasmatic order, to which the seven above named diseases of the Zymotic class belong, and of which a detailed list is given in the Appendix, has caused 704 deaths, as compared with 416, 424, 577, 863, and 975 respectively during the years 1877, 6, 5, 4, and 3. The 704 deaths of the year under report represent a rate of 4·8 per 1,000, as

against a rate of 2.9 in 1877. Increase of mortality from Miasmatic diseases, as compared with the returns of the preceding year, has occurred in every sub-district. Thus the rate is—in Westgate, 4.1 against 2.9; in St. Andrew's, 3.8 against 2.3; in St. Nicholas, 5.2 against 4.0; in All Saints', 4.2 against 2.5; and in Byker, 9.1 against 3.7; the calculations for the last named sub-district being again affected by under-estimate of population.

The diseases to whose deaths these increased rates are due are—Scarlet Fever, Diphtheria, Whooping Cough, Enteric Fever, Diarrhoea, and “other Miasmatic diseases.” Under these heads the mortality of the Borough is more than that of 1877 by 150, 9, 3, 31, 98, and 2 deaths respectively. On the other hand, no death has been recorded from Smallpox, against 1 in 1877, and there has been a decrease of 4 deaths from Measles and 76 from Whooping Cough.

The condition of the different registration sub-districts in regard of mortality from Miasmatic diseases during last, as compared with the preceding, year, is as follows:—

Westgate, with a mortality of 268 deaths from the entire order of Miasmatic diseases, shows a total increase of 87 deaths, including an increase of 3 from Measles, 60 from Scarlet Fever, 5 from Diphtheria, 13 from Enteric Fever, and 26 from Diarrhoea; and a decrease of 1 from Smallpox, 17 from Whooping Cough, and 2 from Typhus.

St. Andrew's, with a mortality of 76 Miasmatic deaths, shows a total increase of 31 deaths, including an increase of 25 from Scarlet Fever, 2 from Diphtheria, 6 from Enteric Fever, and 6 from Diarrhoea; and a decrease of 3 from Measles, 1 from Whooping Cough, 1 from Typhus, and 3 from other Miasmatic diseases.

St. Nicholas',* with a mortality of 54 Miasmatic deaths, shows a total increase of 11, including an increase of 10 from Scarlet Fever, 1 from Diphtheria, 3 from Whooping Cough, 2 from Typhus, 2 from Enteric Fever, and 1 from Diarrhoea; and a decrease of 6 deaths from Measles (of which there were no fatal cases in the sub-district), and 2 from other Miasmatic diseases.

All Saints', with a mortality of 121 Miasmatic deaths, shows a total increase of 49, including an increase of 20 from Scarlet Fever, 2 from Diphtheria, 2 from Typhus, 4 from Enteric Fever, 22 from Diarrhoea, and 6 from other Miasmatic diseases; and a decrease of 1 from Measles, and 3 from Whooping Cough.

Byker, with a mortality of 185 Miasmatic deaths, shows a total increase of 111, including 3 from Measles, 35 from Scarlet Fever, 21 from Whoop-

* Corrected by distribution of deaths in the Fever Hospital.

ing Cough, 7 from Enteric Fever, 43 from Diarrhœa, and 4 from other Miasmatic diseases; and a decrease of 1 death from Diphtheria, and 1 from Typhus.

With respect to the relative mortality of the chief Zymotic diseases in the Borough registration sub-districts during the successive seasons of the year—*

Small pox caused no death in the Borough.

Measles, with a total of 17 deaths in the year, caused 7 of these in the first quarter, viz., 5 in Westgate and 1 each in St. Andrew's and Byker; 3 in the second quarter, viz., 2 in Westgate and 1 in Byker; 3 in the third quarter, viz., 2 in Westgate and 1 in Byker; and 4 in the fourth quarter, viz., 1 in Westgate, 1 in All Saints', and 2 in Byker.

Scarlet Fever, with a total of 219 deaths for the year, caused 25 of these in the first quarter, viz., 7 in Westgate, 6 in St. Andrew's, 4 in St. Nicholas', 3 in All Saints', and 5 in Byker; 58 in the second quarter, viz., 19 in Westgate, 11 in St. Andrew's, 6 in St. Nicholas', 10 in All Saints', and 12 in Byker; 62 in the third quarter, viz., 20 in Westgate, 8 in St. Andrew's, 2 in St. Nicholas', 12 in All Saints', and 20 in Byker; and 74 in the fourth quarter, viz., 28 in Westgate, 10 in St. Andrew's, 3 in St. Nicholas', 13 in All Saints', and 20 in Byker.

Diphtheria, with a total of 19 deaths for the year, caused 4 of these in the first quarter, viz., 2 in Westgate, 1 in St. Nicholas', and 1 in All Saints'; 5 in the second quarter, viz., 3 in Westgate, 1 in All Saints', and 1 in Byker; 6 in the third quarter, viz., 5 in Westgate and 1 in St. Andrew's; and 4 in the fourth quarter, viz., 2 in Westgate, 1 in St. Andrew's, and 1 in St. Nicholas'.

Croup, with a total of 32 deaths in the year, caused 9 of these in the first quarter, viz., 4 in Westgate, 2 in All Saints', and 3 in Byker; 7 in the second quarter, viz., 3 in Westgate, 1 in St. Andrew's, 2 in All Saints', and 1 in Byker; 7 in the third quarter, viz., 5 in Westgate, 1 in St. Andrew's, and 1 in Byker; and 9 in the fourth quarter, viz., 3 in Westgate, 1 in St. Andrew's, 1 in St. Nicholas', 3 in All Saints', and 1 in Byker.

Whooping Cough, with a total of 87 deaths in the year, caused 39 of these in the first quarter, viz., 13 in Westgate, 3 in St. Andrew's, 7 in St. Nicholas', 10 in All Saints', and 6 in Byker; 18 in the second quarter, viz., 6 in Westgate, 1 each in St. Andrew's and St. Nicholas', 6 in All Saints', and 4 in Byker; 9 in the third quarter, viz., 2 in Westgate, 1 in St. Andrew's, 2 in St. Nicholas', and 4 in Byker; and 21 in the fourth quarter, viz., 5 in Westgate, 1 in St. Andrew's, and 15 in Byker.

* Corrected by distribution of deaths in the Fever Hospital.

Typhus, with a total of 9 deaths for the year, caused 4 of these in the first quarter, in St. Nicholas' (Fever Hospital); 1 in the second quarter, in St. Nicholas'; 3 in the third quarter, viz., 1 in Westgate, 1 in St. Nicholas', and 1 in All Saints'; and 1 in the fourth quarter, in Westgate.

Enteric (or Typhoid) Fever, with a total of 52 deaths, caused 10 in the first quarter, viz., 4 in Westgate, 1 in St. Andrew's, 2 in St. Nicholas', 2 in All Saints', and 1 in Byker; 8 in the second quarter, viz., 5 in Westgate, 1 each in St. Nicholas', All Saints', and Byker; 17 in the third quarter, viz., 9 in Westgate, 2 each in St. Andrew's, St. Nicholas', All Saints', and Byker; and 17 in the fourth quarter, viz., 5 in Westgate, 2 in St. Andrew's, 4 in St. Nicholas', and 6 in Byker.

Diarrhœa, with a total of 218 deaths, caused 20 of these in the first quarter, viz., 8 in Westgate, 2 in St. Nicholas', and 5 each in All Saints' and Byker; 13 in the second quarter, viz., 8 in Westgate, 1 each in St. Andrew's and All Saints', and 3 in Byker; 162 in the third quarter, viz., 50 in Westgate, 17 in St. Andrew's, 10 in St. Nicholas', 34 in All Saints', and 51 in Byker; and 23 in the fourth quarter, viz., 11 in Westgate, 1 in St. Andrew's, 6 in All Saints', and 5 in Byker.

DISEASES OF THE RESPIRATORY ORGANS.

Under this head 452 deaths are recorded, as against 526 in the year last preceding. The two most prominent diseases of the order—Bronchitis and Pneumonia—have together caused 385 deaths, as compared with 443 in 1877. The following Table shows the number of deaths from the two diseases in each sub-district during the successive quarters of the year :—

DEATHS FROM BRONCHITIS AND PNEUMONIA.

A.D. 1878.	REGISTRATION SUB-DISTRICTS.					BOROUGH.
	Westgate (Workhouse)	St. Andrew's.	St. Nicholas' (Infirmary).	All Saints'.	Byker.	
First Quarter ...	33	9	11	27	24	104
Second Quarter ...	45	11	5	19	20	100
Third Quarter ...	14	7	11	16	16	64
Fourth Quarter ...	39	12	8	23	35	117
Year ...	131	39	35	85	95	385
Number in previous Year (1877) ...	167	51	47	89	89	443

The three first sub-districts in the Table show a considerable, and All Saint's a slight, decrease in the actual number of deaths from the two diseases. The deaths from respiratory diseases in Byker, although an actual, are probably not a relative, increase over those of the previous year. The actual increase of registered births in that sub-district, which is 5 per cent. above the number registered in 1877, reduces considerably the rate of mortality from the above-named causes; which rate, taken with the probable under-estimate of population already alluded to, may be considered as in reality lower than it was during the year before.

INFANT MORTALITY.

The number of children dying before the completion of the first year of life is 888, as compared with 842, 971, and 1,050 during 1877, 1876, and 1875, respectively.

The numbers of deaths under one year of age in each sub-district during the year, as compared with those of the preceding year, are:—Westgate, 355 against 360; St. Andrew's, 86 against 74; St. Nicholas', 56 against 70; All Saints', 170 against 181; and Byker, 221 against 157.

The rates per cent. of deaths under one year to births registered in the Borough and sub-districts, compared with the corresponding figures for the preceding year, are as follow:—For the Borough, 16·2 as against 15·0 in 1877; for Westgate, 14·3 as against 14·8; for St. Andrew's, 12·0 as against 13·5; for St. Nicholas', 17·5 as against 21·9; for All Saints', 16·4 as against 16·2; and for Byker, 17·9 as against 13·4.

The death-rates of children under one year of age per 1,000 estimated population at all ages are:—For the Borough, 6·1 as against 5·9; for Westgate, 5·4 as against 5·7; for St. Andrew's, 4·3 as against 3·8; St. Nicholas', 5·4 as against 6·5; for All Saints', 5·9 as against 6·3; and for Byker, 10·9 as against 7·9.

NON-CERTIFIED DEATHS,

That is to say, deaths registered without any medical certificate whatever having been given or inquest held, have contributed 119 cases to the general mortality. It is satisfactory to note an improvement under this head, the record of which is too often an indication of neglect or crime. The number returned in the previous year was 148, and in 1876 it was 179. The decrease is chiefly in the sub-districts of All Saints' and Byker. Of the cases during the year under report, 56 are those of children under

one year of age, or 29 less than in 1877. A list of the alleged causes of these deaths is given in the Appendix. Of these deaths 10 are returned as due to "supposed" diseases, including one from "supposed some natural cause." The cause of one is returned as "said to be premature birth," that of another as "unknown," a third as "found drowned."

During the year, 321 accident cases were under the influence of drink when brought to the Newcastle Infirmary.*

MARRIAGES.

During the past five years there has been a marked and steady decline in the annual number of marriages registered in Newcastle-upon-Tyne,† and during the last three years a marked decrease of births. The number of marriages in the year ending 31st March, 1874, was 2,314, and that for the year ending at the same date in 1878 was only 1,697. 5,988 births were registered in the calendar year 1876, whereas the number registered in 1878 was only 5,689. The falling off of both marriages and births is doubtless due to the depression of trade.

(B.)—ADVICE GIVEN.

During the year the Medical Officer of Health has advised the Sanitary Committee on the following matters—the action taken thereon and results are given in a subsequent division of the Report.

(1.)—ZYMOTIC DISEASE.

(a.)—*Fever Hospital.*—A sharp outbreak of Typhus, the first cases of which came under observation in December of 1877. The first appearance of the disease, as stated in the Annual Report for that year, was due to importation, a tramp whilst affected with the fever having been received into a house in Dog Leap Terrace, from which contagion was communicated in different directions. Cases occurred in Dog Bank, next in Dog Leap Terrace, Pilgrim Street, High Friar Street, and Clayton Street. All of these were traced to contagion from the tramp. They were all removed to the Fever Hospital as early as possible. In two instances where the relatives objected to the removal of the patients who were lying in single

* The information is kindly furnished by the house surgeon, Dr. Dixon.

† Superintendent Registrar's District, which includes Municipal Borough and the Townships of Benwell and Fenham.

rooms, occupied by others, and without proper accommodation, each was taken to Hospital on Justice's order. Both recovered, and there was no extension of the disease to other members of their families.

Although few in number (12) the cases affected in the outbreak were all very severe, as may partly be judged from the mortality of 5 or above 41 per cent., compared with an annual mortality of from 12 to 22 per cent, during the epidemic extending from 1865 to 1870. The type of disease was virulent, and the sufferers, by reason of previous privation, combined in some cases with intemperance, were from the first very unfavourable subjects.

The successful management of the outbreak shows the advantage of insisting on isolation in Hospital; for, judging by the experience of former years, when the removal of patients was less easily secured, there can be little doubt that had those of the present year been allowed to remain at home, the town would have suffered from a severe epidemic.

(b.)—An outbreak of five cases of Scarlet Fever among the resident assistants of a large drapery establishment, successfully treated by removal of all the patients to the Fever Hospital and disinfection.

(c.)—The condition of the Fever Hospital, a subject which has been several times reported on during the past five years, was again brought under the consideration of the Sanitary Committee in December last, by the Medical Officer of Health, who stated that, owing to want of a probation ward, he had been obliged to decline to admit a suspected case of Fever from the prison, there being no ward in which such a case could be placed without great danger of the patient catching infection of other disease. This case, after been kept in the prison some days, afterwards proved to be one of Fever, and was then removed to Hospital. It is unnecessary to point out the danger to the inmates of the prison from the unavoidable detention there of such a case.—The ventilation of the Fever Hospital is also defective, so that during severe weather it is impossible to keep up a sufficient supply of fresh air without exposing the patients to very cold draughts. The capacity of each ward is such that to occupy all the beds is to deprive the patients of the requisite amount of air space. The water-closets of the Hospital are close to the doors of the wards, and are not properly ventilated. The general structure of the Hospital is such that it is impossible to effectually isolate the different fevers from each other. The administrative department is defective. There is no bedroom for the servants, who are obliged to sleep in the kitchen. The building has been in use for seventy years, and is very dilapidated. In the event of an epidemic of Fever of any kind, the arrangements and accommodation at

the Hospital will be found deficient. It is desirable that, in addition to wards for pauper and non-paying patients, there should be others for persons in good circumstances. This principle is now generally acted on in Fever Hospitals, but there are no rooms available for the purpose in the Newcastle Fever Hospital, a circumstance which greatly limits the usefulness of the Institution. Such wards would be of great service in the prevention of infectious disease in private families, hotels, schools, &c., and might be made remunerative. The subject has been placed in the hands of a Sub-Committee, as stated in the next division of the Report ("Action Taken").

(d.)—The Committee have also been advised as to Zymotic disease in various parts of the Borough, of which the following may be recorded, viz., an outbreak of Scarlet Fever in and near *Liverpool Street* in June, in which a child from one of the infected houses was found attending school. As this appeared to have arisen through ignorance, the parents were merely cautioned. It was recommended to the Committee that a circular be addressed to the masters and mistresses of schools, advising strict precaution to prevent the introduction of the infection of disease among their scholars, and requesting that notice of any such cases should be forwarded to the Sanitary Authority. The Committee have since authorised the issue of such a circular.

An outbreak of Scarlet Fever at and near *Chimney Mills* in September. The first case occurred in the family of a cow-keeper and milk-seller in Morpeth Street. Two other families subsequently affected had got milk from this place. The milk was retailed in the kitchen where the infected children were. There is also evidence that some of the convalescents in the milk-dealer's family had been allowed to go into the street before being free from infection. In two of the houses at Morpeth Street, where cases of Scarlet Fever have occurred, the structural arrangement is defective, the bedrooms being small "well rooms," the staircase narrow, dark, unventilated, and at right angles to a narrow passage closed by a door at each end. This condition is common to many of the houses in this street, as has previously been reported to the Committee, and the matter is claiming attention.—The prevalence of Scarlet Fever at *Pottery Bank, St. Anthony's*, and the offensive condition of the common privy middens at the time.—The same at Conyers Road.—A case of Scarlet Fever in a room in *Percy Court* where tailors' work was being done. The parents of the patient were cautioned, and the clothes in the house were purified in the Disinfecting Stove.—Two cases of Scarlet Fever in a cellar kitchen in *Pine Street*, occupied by a tenant who kept a mangle, the use of which was prohibited during the continuance of infection. The

kitchen was unfit for occupation, and has been closed.—An outbreak of Fever (probably Enteric), in October, at a *dairy* in *Barrack Road*. The cases were under private medical treatment. On the premises there is a cowbyre containing five cows, separated by a brick wall only from one of the bedrooms on the ground floor of the house. The yard, which is small and enclosed on all sides by high walls, etc., contained a very offensive privy and dung midden having a large quantity of offensive liquid in it within six feet of the bedroom window. Three of the sides of the midden are of brick. A large quantity of the liquid oozed through into the yard, and after mixing with the urine from the byre, flowed beneath the window of the bedroom, which is about three feet from the ground. The byre is undrained, unventilated, and unfit for the housing of cattle. There is no dairy, the milk being usually taken into the house, where the vessels are kept. The floor and three of the walls of the bedroom above-mentioned are wet, and have a strongly offensive smell. The room is unfit for habitation. One of the walls of the front kitchen is also damp. It is right to state that during the continuance of fever in the house, the cows were milked by a person not living on the premises. On the recommendation of the Medical Officer of Health, the person in charge undertook that neither milk for sale nor milk vessels should enter the house so long as infection continued. The condition of the byre itself, which has already been referred to, is such as to render the cattle in it prone to contract contagious diseases, such as pleuro-pneumonia, etc., and in case of the introduction of such disease therein, to cause it to assume a malignant form, either of which results would be a source of considerable expense.—A case of Enteric Fever, under private medical treatment, in the family of a resident dairy keeper, in *Stowell Street*. The back premises where the cows are kept, are clean, but very much confined. The dung-midden is made of uncemented brick, and is open ; it is a very little distance from the window of the house, the yard being small and much enclosed. The byre is dark and small. The drain was defective, formed of brick, and passed beneath the house. The dairy communicates directly with the kitchen, and closely adjoins the byre, from which it is separated by a brick wall only. Both dairy and milk vessels were clean ; and, by the statement of the dairy keeper, care had been taken to protect the milk as far as possible from contamination. No extension of the disease at either of the dairies came under notice.—A case of Enteric Fever in a dirty room occupied by a meat-pie maker as a living and baking room. The mother of the patient was discovered baking the pies during the intervals of her attendance at the bedside of the patient. The

removal of the patient to hospital was urged, but was not agreed to by the parents.—An outbreak of Scarlet Fever at *Stepney Terrace* and neighbourhood, where fifteen cases and six deaths occurred in a few weeks. (The sanitary defects were of a structural nature, and will be found described under the proper head.)—Scarlet and Enteric Fever in connection with the insanitary condition of *Back Molyneux Street*, Byker, which was unpaved, undrained, and offensive.—The like at Cook Street, Byker.—A case of malignant Scarlet Fever in a “well-room”* in *Pitt Street*, on the first floor, the access to which is by a dark, unventilated, narrow staircase, at right angles to a passage about thirty feet long, on the ground floor.—A malignant case of Enteric Fever (fatal) in the kitchen of a private house and directly over a stable in *Lisle Street*.—Numerous cases of Fever in various parts of the Borough in connection with other sanitary defects.

In connection with the subject of Zymotic disease, and for general purposes, a *Sanitary Register* for Newcastle was recommended. At present there is no record of the number and locality of privies and other conveniences, tenemented houses, their population, and information affecting their fitness for habitation; wells and springs; noxious trades (except slaughter-houses), etc., etc. These and other details are much needed for the efficient sanitary supervision of the Borough, and may be acquired with a little addition to the ordinary working staff.

(2.)—ARTIZANS AND LABOURERS DWELLINGS IMPROVEMENT
ACT, 1875.

Old Pandon Group.—The Sanitary Committee having recommended that the property termed the Old Pandon Group in the official representation of the Medical Officer of Health under the Artizans and Labourers Dwellings Improvement Act, 1875, should be put into better sanitary condition and allowed to remain, a second inspection of the group was made by the Medical Officer of Health with that object. The defects of the property are chiefly those of age and structural arrangement, the only effectual remedy for which is demolition. Several defects arising from other causes have been indicated, and among others the following:—

In Pandon, at No. 2, a water-closet beneath a living-room, which from this cause is unfit for habitation. At No. 12, a tenement over a

* A room without a fire-place, and having no means of ventilation except a window and door at the same corner of the room, as in Buckingham Street. (See Plan.)

stable, and without water supply or convenience. At Cherry's Entry, several tenements, which from darkness, dilapidation, or want of ventilation, are unfit for habitation. At the corner of Blythe's Nook, an offensive water-closet and urinal. In Sweeps' Entry an offensive Macfarlane closet. At Tinners' Entry a tenement overcrowded.

Wall Knoll.—The sanitary defects noted on the inspection of Wall Knoll were:—Want of ashpit accommodation for No. 16, the tenants depositing house refuse and even night-soil on the roadway. The privy and midden system is in operation in other parts of this street. The privies in several instances are so constructed that the ashes thrown into the midden cannot cover the soil, and many privies are badly ventilated, dilapidated, or otherwise in an insanitary condition. They are placed in confined yards, and the refuse in cleansing is conveyed through narrow house-passages.—Rooms unfit for habitation were noted at No. 14, Wall Knoll, at High Yard, Dummie's Entry, and Chapel Yard. The water-closet accommodation at Coxon's Buildings is defective. It is desirable that the privies and middens be altered to ash or other closets. Most of the remainder of the dilapidated property in the Old Pandon Group is now being pulled down for the formation of a new street between the skew arch of the North Eastern Railway and the Milk Market, after the design of the Borough Engineer. This action will be a great sanitary improvement, as it will sweep away some of the worst tenement houses in Newcastle.

New Dwellings—Change of Site.—On September 27th, an inquiry was held by an Inspector of the Local Government Board as to the change of site of the dwellings to be erected in lieu of those in the New Pandon Group. The Council, as the Local Authority, proposed Miller's Hill, Tyne Street, the property of the Corporation, as being a more suitable site than the Battle-field, which was previously recommended. This proposition was supported by the Borough Engineer and the Medical Officer of Health. The area of Miller's Hill is 4,719 square yards. Although situated at a distance of 300 yards further from the condemned area (New Pandon Group), the Miller's Hill site is more elevated, more exposed to the breeze from the river, and more convenient for workmen both on the river and quay. The result of the inquiry has not yet been made known.

(3.)—TENEMENT PROPERTY IN BLOCK.

Insanitary conditions connected with large or small groups of houses have been reported on as follow:—

Sandgate.—At Cellars' Entry, tenements unfit for habitation, insuffi-

cient and defective closet accommodation, and a defective drain. At Mill Entry a tenement, and at Johnson's Entry four tenements, unfit for habitation. At Eddy's Entry, defective closet accommodation. At Wrangham's Entry, a house without "convenience." At Chapel Lane, a water-closet beneath a living-room; insufficient closet accommodation for one group of tenements; and two tenements damp and unfit for habitation from a leaking water-closet. At Robson's Entry, a tenement unfit for habitation. Ilderton's Entry, defective closet accommodation. Anchor Entry, a defective drain. Blacksmiths' Entry, insufficient and defective closet accommodation, and a water-closet beneath a living-room. At Young's Entry, six tenants without closet accommodation. At Half-Moon Lane, a defective closet.

St. Ann's Street.—At Wood Entry, two rooms unfit for habitation; an unventilated water-closet under a staircase in the interior of a house. At White Boar Entry, a room unfit for habitation. At Nag's Head Entry, a room unfit for habitation.

Kidman's Buildings, Byker Hill.—No drain; offensive state of roadway.

Tenement Property on Byker Bank.—The three adjoining blocks of tenement property on Byker Bank, including the east side of Leighton Street, both sides of Thompson and Rippenden Streets, and part of Byker Buildings* have been reported on as being in an insanitary condition from structural and other defects. This property covers an area of 0.83 acre, including streetway, and is inhabited by 435 persons; or at the rate of 548 persons per acre. The general death-rate of the entire group in 1877, excluding the portion of Byker Buildings, was 39.1 per 1,000 population; that of the Borough being 22.3. The rate of death from the chief Zymotic diseases in the group was 9.2 against a rate of 2.4 per 1,000 in the Borough. In the first half of the year the general mortality of the group was equal to a rate of 32.2 per 1,000. In Rippenden Street, with a population of 162 persons, 6 deaths, all being those of children, have occurred.

One great defect in the property is want of ventilation. The general amount of yard space is exceedingly small, and consists entirely of the narrow interval between the two sides of adjacent streets, there being no back street. The yard space of some of the houses is covered over, so that there is practically no yard.

The blocks of the group may be described in order from west to east.

* See plan (Appendix).

The first is that formed by the adjacent sides of Leighton and Thompson Streets, with the yards between. There is no cross- or lengthway-ventilation to the block, which is about 55 feet in average width and 300 feet in length, and is closed in at both ends by high buildings. The yards are narrow and dark. *Freeman's Court* is a dark, close, and dilapidated yard, 120 feet long by about 12 feet wide, surrounded on all sides by buildings, those of Thompson Street being three storeys high. The only entrance, as with all the yards of the entire group, is by a low covered passage. At the time of inspection the court was badly paved, and was drained in its lower half only. There were five ash-closets and one water-tap only for 30 tenements of Freeman's Court and the adjoining houses of Leighton Street and Thompson Street, which belong to the same owner. In addition to the general darkness and closeness of the Court itself, many of the rooms are without provision for through ventilation. Those on the east side are the cellar kitchens of Thompson Street; most or all of the latter are unfit for habitation. The houses in Leighton Street, near the lower end of this court, are damp (7 and 8). At No. 13 (a beerhouse) there is no proper urinal. There is an unventilated water-closet at the end of the kitchen (partly boxed off), and beneath the living and sleeping room of a common lodging house. The wall is dripping with water, either from the sewer or the earth of the street above. At the lower end of Thompson Street is an offensive open gutter, which has been reported to the Borough Engineer.

The second block, which includes the adjacent sides of Thompson and Ripponden Streets, is still more enclosed than the preceding one. The yards are smaller and more built across, and there is no cross ventilation to any of them. Many of the rooms have no provision for through ventilation. The ash-closet system is in use here, and appears to work fairly well.

The third block includes the east side of Ripponden Street and the corresponding part of Byker Buildings. As in the other blocks, there is no back street, and no cross or lengthway ventilation. The ground-floor rooms have no provision for through ventilation.

Several tenements in the group were reported as unfit for habitation, overcrowded, damp, or defectively ventilated; several yards as being much enclosed or entirely built over; and some of the drainage as being defective.

Byker Village.—A block of 11 tenements without any drains; slops and other liquid refuse being deposited on the roadway, etc. There is no sewer in the locality.

St. Peter's.—The square block of tenement property at St. Peter's, comprising Glasshouse, Chapel, Hotspur, Fell, and River Streets, was found to be in an unsanitary condition. The block, of which a plan is shown herewith (see Appendix), covers an area of 3·2 acres, and at the time of the inspection of property under the Artizans and Labourers Dwellings Improvement Act, 1875, contained a population of 1,085, or 339 persons to an acre. The general mortality of St. Peter's for the twenty-six weeks ending 29th June, 1878, calculated on the population enumerated in the winter of 1875, is equivalent to an annual rate of 32·5 per 1,000, that of the Borough being 22·6. The deaths from Pulmonary Consumption in St. Peter's represent an annual rate of 6·8 per 1,000, that of the Borough being 2·8. The death-rate from Brain Disease, not apoplexy, in St. Peter's is 6·8, against 2·4 for the entire Borough. The rate of mortality from Respiratory diseases in St. Peter's is 5·1, against a rate of 3·3 for the entire Borough. These statistics represent high rates of mortality from all causes, and from diseases specially attributable to defective sanitary conditions, such as want of light and ventilation, and exposure to noxious emanations from decomposing human, and other organic refuse. It is right to state that the strict accuracy of the calculations is probably to some extent interfered with by difference in the number of the inhabitants at the present time as compared with that at the time of enumeration. On the one hand, new houses are now occupied, and on the other, old ones are now empty which were not so two years ago.

The sanitary arrangements and conveniences of almost the whole of this property are bad. Glasshouse Street is 25 feet wide; the four other streets are only 20 feet each in width, the rows of buildings are placed close to each other, and there is no proper back street between any two adjoining streets. The houses in Glasshouse Streets (front and back) have no yards, and are not properly provided with convenience and water. There are only two water taps available for the use of about fifty tenants in this street; there are four or five other taps for private use only. The space between Glasshouse and Chapel Streets is very narrow (average width about 10 or 12 feet) and confined, and has no cross ventilation; it is unpaved. There are no private yards to the houses in the Glasshouse Street side of this space. Most of the houses on the Chapel Street side have yards, but these are very small, so that the contained privies and middens are necessarily very near the houses.

The adjoining sides of Chapel and Hotspur Streets have no back street; the space between the houses of the two streets is not above 20 feet across in the widest part, and in other places is only 10 or 15 feet. It

consists entirely of yards of 10 feet and less in width, with their contained privies and middens, and is without either cross or lengthway ventilation. The only access to these and most of the other yards in the block is by narrow covered passages, most of which belong to the houses, and are closed by doors. The adjoining sides of Hotspur and Fell Streets, and of Fell and River Streets, are similar to the foregoing in having no back street, yards with privy middens only intervening. The yards between Hotspur and Fell Streets are not so confined as others; they are, however, small.

Fell and River Streets are smaller and more enclosed than any of the foregoing. The yards to the east side of River Street are very small; they have houses on one side only. All the middens in this block of streets are very near the houses. There is a general deficiency of means of access to the middens; when they are emptied, the contents are either carried through the house passage, or are thrown upon the narrow, confined, and unpaved space between the streets. 5 houses, viz., 1 in Chapel Street, 1 in Fell Street, and 3 in River Street, have no ashpit, the tenants deposit their refuse on some open ground near the north-east angle of the block. There is no drain for the back of the east side of River Street. The spouting of several of the houses on this side is defective. Horse manure is deposited on the ground in this locality, and near the foot of the street sewage from an incomplete drain flows across the roadway into Bottlehouse Street.

20 houses in the St. Peter's Group are damp, including 7 from privy middens, 6 from defective spouting, and 7 from other causes. 18 of these are in River Street; 11 houses in River Street are from dampness, darkness, or other intrinsic sanitary defect, unfit for habitation. Common privies and middens are almost generally in use throughout the group. The privies, with few exceptions, are so constructed as to prevent the ashes thrown into the middens from covering the soil, and are on this account, irrespective of other reasons, a great nuisance. Many of these structures are dilapidated, and 2 middens were boarded at the side; 6 were observed to be leaking; 20 middens were exceptionally offensive.

Proper ventilation of the group cannot be secured without extensive demolition of buildings, as *e.g.*, under the Artizans and Labourers Dwellings Improvement Act, 1875, which is not at present advised. Much good, however, may be done by changing entirely the system of refuse removal. The property consists chiefly of houses of two or three tenements each, occupied in the majority of cases by respectable tenants, and is well suited for the adoption of the ash-closet system of refuse removal,

which is recommended. There should be one or more of these closets to each yard in proportion to the number of tenants, one being required for at least every four tenants. The whole of the closets should be emptied either daily, three times a week, or at frequent intervals, before they become full. It is advised that the pans of the ash-closets be thoroughly cleansed after the removal of their contents, as unless this be done the adherent soil becomes offensive. To carry out the ash-closet system effectually and without nuisance to the residents, it is necessary that the pans be removed to the dépôt, under tight-fitting covers, and be cleansed there. As the introduction of ash-closets at St. Peter's would in some instances, which may be specified, require considerable structural alterations on account of the impossibility of access to the yards during the night, it is recommended that in such cases the privies be converted into water-closets, and that the house refuse be set out in scuttles for daily removal. The back premises on each side of Glasshouse Street and elsewhere requiring it should be paved or cemented. There is some uncovered ground to the west of Glasshouse Street which, if enclosed, would serve for yards to the houses; and on the east side of the street a similar arrangement might under the ash- or water-closet system be made. Each yard should be provided with a supply of water. The defects of drainage, spouting, rooms damp and unfit for habitation, should be dealt with.

Stepney Terrace.—In connection with the prevalence of Scarlet Fever, already referred to, report was made of the defective system of refuse removal, viz., by brick drains, privies, and middens, through the walls of some of which offensive liquid was oozing. From the small size of the yards these middens were very near the windows.

Mackford's Entry, Northumberland Street.—This block was reported on as consisting of 54 tenements, viz.:—48 of one room, and 6 of two rooms each, and occupied by 191 persons. Most of the staircases are dark and badly ventilated, and all need whitewashing. There was only two water-taps in the entry, which are insufficient for so many houses. The closet accommodation is very defective both in amount and quality. The middens are defective. There is an untrapped drain grate at the bottom of the entry. The paving is defective, and the rain discharges into the foundations of the houses. Many of the rooms are in a very insanitary condition; nearly all of those on the ground floor are damp; seven are on this account unfit for habitation. Three tenements were found to be overcrowded. The rooms on the ground and first floors are dark from overshadowing of the high walls opposite, which, together with the house walls, should frequently be whitewashed. The entry requires to be

cemented, and the rainfall should be conveyed by proper pipes to the drain. Eight or ten ash-closets should be provided.

Morpeth Street, Chimney Mills.—Reported on as regards refuse removal and want of paving. The ash-closet system was recommended.

Barrack Square.—Reported on as regards the damp and defective state of the brick floors of most of the ground rooms; insufficiency and deficiency of spouting; defective paving; defective drain-traps.

Buckingham Street.—This street was inspected in connection with an outbreak of Diphtheria (previously referred to) in a family of five persons, all of whom suffered severely, and of whom three died. The street is about 1,200 feet long by a mean breadth of 130 feet, including yards, and front street of about 50 feet. The whole covers an area of 3·6 acres, and forms sites for 150 houses, occupied by a population of 922 persons; or at the rate of 252 persons per acre.

Of the tenement property in this street there are 62 numbered houses, comprising 217 tenements, viz.:—109 of one room, 103 of two rooms, and three only of five rooms each; 22 of the numbered houses are self-contained, with or without shops in front. The remaining houses are occupied by non-residents as workshops, shops, etc.

During the year 1877 the mortality from Zymotic diseases in Buckingham Street was at the rate of 7·5 per 1,000, that of the Borough being 2·4. The rate of mortality of children under one year of age was 7·5 per 1,000, that of the Borough being 5·9. The rate from Bronchitis was 5·4, against 2·2 in the Borough. The rate from Consumption and other diseases of the same order was 5·4, against 3·3 in the entire Borough. The mortality from all causes in the street was at the rate of 26·0 per 1,000. The *prima faciæ* comparatively favourable indications of this rate are more than counteracted by the fact that 13 of the deaths, or above 54 per cent., were those of children of not more than two years of age.

The street consists of two portions, viz.:—Buckingham Street (proper) and Upper Buckingham Street. Buckingham Street (proper) has no back street, the houses of Oystershell Lane abutting upon its southern, and those of Oakes Place upon its northern, side. The back streets of Upper Buckingham Street are very narrow, that on the Cottenham Street side being 12 feet in width and open at each end by covered archway only. On the Oystershell Lane side of the street, a narrow back lane extends to about midway between Harle Street and the end of Buckingham Street. This lane, near Harle Street, is about 8 feet across; and is reached by an archway beneath the first floor of a house. At its upper end the lane is about 3 feet across. From this point the lines of the houses of Bucking-

ham Street and Oystershell Lane gradually converge and unite at an acute angle near Westgate Road.

Defective Ventilation is one of the chief intrinsic sanitary defects of many of the houses.

In 25 houses —viz., 14 in Buckingham Street proper and 11 in Upper Buckingham Street—the staircase is not more than 3 feet wide by about 15 feet long, and is without either means or light or ventilation. As shown in the accompanying plan (see Appendix), it is placed at a right angle to the house-passage, which in most cases is only 3 feet wide, and extends from front to back, a distance of about 33 feet, and is closed by a door at each end. 29 rooms—viz., 19 in Lower and 10 in Upper Buckingham Street—are more or less damp in walls or ceilings; 9 are dark; viz., 8 in Lower and 1 in Upper Buckingham Street; 44 of the bedrooms (20 in the lower and 24 in the upper street) are “well rooms”—*i.e.* rooms without other means of ventilation than the door and window, which are placed close together at one corner (see Plan). One of these rooms, at No. 79, is 14 feet by 6 feet 2 inches wide, and 8 feet 8 inches high. That of the house in which the cases of Diphtheria occurred, measures 15 ft. \times 7 ft. \times 8 ft. 10 in. Eight rooms in the street were overcrowded at the time of inspection.

The paving of 14 yards is defective, and should be replaced by cement. The drainage of 36 yards is defective. In 26 of these cases the drains are either of brick or stone. In others the drain is imperfectly trapped. The ventilation of 31 yards is noted as defective. This is observable chiefly in Lower Buckingham Street, where many of the yards are surrounded on all sides by two-storey buildings, and have no outlet except narrow covered passages. The yards of the upper street are also small, and the houses of two streets are near together, but the closing in is not so marked as in the lower street.

The refuse removal is carried out by different methods in different parts of the street. Thus in Lower Buckingham Street there are 20 privies and middens (11 of which were very offensive) on the north side, and only 4 (of which 2 were very offensive) on the south side, where water- or ash-closets are in general use. In the upper street there are 5 privies and middens on the high side of the street and none on the opposite side. From the narrowness of the yards some of these privies and middens are necessarily very close to the houses. At No. 40 the midden is only 3 feet from the door. This midden and some others are emptied through the house passage, which is a great nuisance to the tenants. The middens at No. 44 and 46 abut on tenements the walls of which are saturated with

liquid therefrom, rendering the rooms unfit for habitation. At No. 52 the midden is leaking into the yard. At No. 34 there is one midden only for 12 tenants; at No. 51 is one privy only for 8 tenants; at No. 7 there are two ash-pans for 11 tenants.

On referring to the houses in which have occurred the deaths from Zymotic, Tubercular, Respiratory and Convulsive diseases, all of which affections owe more or less of their origin and development to insanitary conditions, it appears that most of these are arranged in groups. Thus at Nos. 59, 61, 63, and 65 (houses adjoining each other), there was in 1877 a death in each house respectively from Tabes, Diarrhœa, Infantile Bronchitis, and Scarlet Fever. There has since been another death from Scarlet Fever at No. 65. At No. 42, 44, 48, and 52 respectively, there have been deaths from Infantile Bronchitis, Enteric Fever, Phthisis, and Convulsions; and at Nos. 23, 25, and 27 respectively, deaths from Infantile Bronchitis, Convulsions, and Phthisis. The remaining deaths in Buckingham Street are in houses not connected with each other; thus in 1877, at No. 35 there was a death from Whooping Cough; at No. 45, a death from Phthisis and one from Tubercular Peritonitis; at No. 55 a death from Infantile Bronchitis, also a death from Whooping Cough in 1877. At No. 80, a death from Phthisis, and one from Diarrhœa, each in 1877; at No. 85, one from Croup and one from Diphtheria, each in 1877. In the first of the groups (No. 59, 61, etc.) the drains are defective, one at least of the yards is very much confined, and there are three privies. In three of the houses the staircases and passages are narrow, badly ventilated, and the one at a right angle to the other, as shown on Plan; the bedrooms are also "well rooms." In the second group (No. 42, 44, etc.) two of the houses have similar defects of passage, staircase, and bedrooms, and one room is unfit for habitation from dampness. The paving of one of the yards and the drainage of two others is also defective. Three of the yards are much enclosed, one being only 5 feet wide in half its extent. All have privies; the middens of three are very offensive, and one was observed to be leaking into the yard. In the third group of houses (No. 23, 25, etc.) one of the rooms is damp and unfit for habitation, and the yards are much enclosed. At No. 35 (as already stated) is a room damp and unfit for habitation. At No. 45 the paving and drainage are defective, the water-closet has no water supply, and the yard is enclosed on every side. At No. 55 the drainage is bad; there is a privy and a wet offensive midden. At No. 80 the passage and staircase are defective (as in previously described cases); there are two "well rooms," and the ceiling of one room is damp. There is also a privy in a very narrow and close yard.

At No. 85 the passage, staircase, and bedroom are defective (as in above described cases), and the drain is of brick, and is obstructed. The sanitary defects of the staircases and bedrooms are capable of easy remedy. A large ventilating skylight on the stair with hinged fanlights over the doors would answer for the former. The bedrooms may be ventilated by openings in the walls next the staircase, or by altering the position of the bedroom doors. The defects of drainage, unfitness for habitation, dampness and overcrowding, are not peculiar, and may be dealt with in the usual manner. The abolition of the privies and middens and the introduction in their stead of either ash- or other closets, as circumstances may render advisable, is recommended. The expense of any of the above proposed alterations should not be an objection since the cost of these will be small in comparison with the rents received for the property. As an illustration, taken at random, of the value of the property, one house of four tenements, namely, two on the ground-floor of one room each, and two on the first floor of two rooms each, together with a small yard, the whole occupying a space of 21 feet wide by 42 feet deep, is let at weekly rentals equal to £38 7s. per annum, or at about three times the rental of inhabited ground in the best part of the town.

Stowell Street (north-west side).—Reported on as having, in numerous instances, old brick or stone drains beneath many of the houses, causing dampness; walls boarded up to conceal damp; defective drain-traps; defectively ventilated common privies abutting on living rooms, etc., etc.

Dunn Street, Scotswood Road.—The very dilapidated state of the property from No. 41 to 81 on the east side of the street has been reported on. The yards are small, dark, badly ventilated, badly paved, and damp. Many of the back rooms are damp from earth behind, and also dark; some are unfit for habitation; all are more or less dilapidated. Ashes and refuse are kept standing on the stairs, from want of proper "convenience;" the water-closets are dilapidated and badly kept. The unsanitary condition of the dwellings in Dunn Street is increased by the daily practice of turning hot water and partially condensed steam into the common sewer from the boilers and still at the gas works. This practice endangers the health of those whose house-drains join the sewer, from the expansion of the sewer gas which is thus forcibly driven into the interior of the dwellings. Zymotic disease has been fatally prevalent in the street. Both water and steam may easily, and should be, conveyed by a separate pipe from the works direct to the river.

(4.)—SANITARY DEFECTS OF OTHER TENEMENT PROPERTY, ETC.

In addition to the foregoing, the following is a summary of advice given as to other and individual tenements, etc., the defects of which have mostly come under notice on inspection required by the prevalence of Fever in the dwellings:—

No Closet accommodation.—Heber Tower, West Walls; an unnumbered house in Castle Garth; 10, No. 1 Court, Stowell Street.

Defective or offensive Closet or Privy.—41, Liverpool Street; 28, Cook Street, Byker; 8, Tuthill Stairs; 8, Long Stairs; 17, Friars; 29, Pudding Chare (a common lodging house); 37, Groat Market.

No accommodation for House Refuse.—37, Liverpool Street; Heber Tower; No. 1, Mushroom.

Offensive or open Middens.—24, Upper Buxton Street; and 19, Gallowgate.

Yards, etc., defectively paved or drained.—Dunn's Buildings, Byker Bank; Horn's Yard, Gallowgate; Sheep's Head Alley.

Undrained Cow-house and Stable.—Headlam Street, Byker.

Offensive Cow-dung Middens and Pond.—Heaton Town Farm.

Deposits of Refuse.—Bridge End, Walker Road; Sweeps' Entry, Close.

Defective Urinal.—Free Trade Inn, St. Lawrence.

Offensive Stable.—19, Gallowgate.

Defective House Drainage.—Cowgate (unnumbered house); 135, Percy Street; 6, Wellington Terrace; No. 1 Court, Stowell Street; Patterson's Court, Percy Street; 87, Grafton Street; 16, St. Lawrence Square; Alderson's Entry, Close; 19, Gallowgate; 37, Groat Market; Chapel Yard, Tuthill Stairs.

No Water Supply.—Heber Tower, West Walls; No. 7, Silver Street (a common lodging house); No. 1, Mushroom.

Kitchen or Living Room over Stable.—12, Lisle Street; Collier's Entry, Close.

Room offensive from adjoining a Cow-byre.—3, Seaham Street.

House Cesspool.—Headlam Street, Byker.

Water-Closet near middle of building.—21, Dog Bank; 2, Bell's Court, Pilgrim Street.

Passages dirty.—Old Chapel, Tuthill Stairs.

Staircases defectively ventilated.—10, Queen's Lane; 1, Dog Leap Terrace; 21, Dog Bank.

Staircase dark.—10, Queen's Lane.

Overcrowding.—48, Carlton Street; 11, Worthy's Yard, Prudhoe Street.





Dark Rooms.—Alderson's Entry, Close; Horn's Yard, Gallowgate.

Rooms defectively ventilated.—48, Carlton Street; Alderson's Entry, Close.

Damp Rooms.—7, 8, and 10, No. 1 Court, Stowell Street; 4, Dunn's Place, Byker Bank; 2, Gouldburn's Yard, Newgate Street; 6, Quality Row; 16, St. Lawrence Square; Castle Garth (no number); 8, Tuthill Stairs; 14, Hanover Street; Alderson's Entry, Close; Horn's Yard, Gallowgate.

Occupied Rooms unfit for habitation.—8 and 10, No. 1 Court, Stowell Street; 2, Gouldburn's Yard, Newgate Street; 6, Quality Row; 16, St. Lawrence Square; 8, Tuthill Stairs; 14, Hanover Street (two tenements); Horn's Yard, Gallowgate; 8, Long Stairs; 1, Alderson's Entry, Close; Collier's Entry, Close (three tenements); Heber Tower, West Walls.

(5.)—POISONOUS WALL PAPER.

Five of the members of a family having shown signs of arsenical poisoning, portions of the wall paper of the bed rooms occupied by the patients were obtained and forwarded to the Borough Analyst, who reported that the colouring matter contained arsenic to the extent of 0·73 grain per square foot of paper. The head of the house was at once informed and advised to have the paper stripped from the walls, which was done. The paper-hanger was also cautioned. The paper in question is one of a new and favourite pattern (see sample), consisting of fruit and leaves (colour dull green, with brown streaks); apple blossoms (pink); grasses (greyish green); birds (brown, with yellow markings); and butterflies (blue, with brown and yellow markings), on a delicate bluish grey ground. The surface of the paper is dull, and the colouring matter separates on slight friction. The ill-effects on health and life from wall papers and other domestic articles coloured with arsenic have been repeatedly shown, and bright green hues are now generally regarded with suspicion; but the public are not yet aware that many other colours on wall papers—even white, and also the brilliant aniline dyes of different articles of apparel, are often dangerous from contained arsenic; and that, in fact, as has been recently stated, colour alone is no guarantee of safety. It is much to be desired that the use of arsenic as a colouring matter should be prohibited in this country, as is said to be the case in France and Germany. In the absence of this prohibition, purchasers of wall papers and paper-hangers will do well to require a written guarantee from the maker that the paper supplied is free from arsenic.

(6.)—TANNERIES, ETC.

Numerous complaints having been received of the nuisance caused by a certain tannery in a central situation, the place was inspected, and found to be in an offensive condition. The various tanneries and other works concerned in the manufacture of leather were afterwards visited and examined, and with the above exception, were all found to be clean and free from nuisance. At the principal and largest of these works, where the manufacture of glue and several other branches (usually considered offensive) of the leather trade are also carried on, the entire establishment is a model of cleanliness and good order. At the tannery first mentioned, in addition to the nuisance arising from want of cleanliness, a frequently-recurring stench has been much complained of, and was on one occasion strongly perceptible at a distance of two hundred yards. This was due to the “soak” (or water in which the dried foreign hides are softened) being allowed to become offensive before being changed, which appears to be neither necessary nor desirable.

(7.)—OLD QUARRIES AND REFUSE DEPOTS.

In June, the Committee were advised that offensive decomposing animal and vegetable matters, road refuse, straw, etc., were still being deposited at the old quarries, near Douglass Terrace, at Campbell Street, Arthur's Hill, and at Durham Street, Elswick Road. It was stated by the Superintendent of Cleansing that these deposits were not made by the Corporation. Instruction was given that “if any offence could be brought home to other parties they were to be summoned.” Many of the houses in the neighbourhood of these quarries are built on this “made ground” long before it is in a fit condition for such a purpose, if indeed it can ever be said to be so, which, notwithstanding the evidence so often quoted in support of the harmless nature of such ground under certain conditions, is questionable.

(8.)—SLAUGHTER-HOUSE REFUSE REMOVAL.

This was twice again reported on as being inefficiently performed. Instruction was given that arrangements be made for a more frequent cleansing.

(9.)—DAIRIES, COWSHEDS, ETC.

An account has already been given of the prevalence of Infectious Fever in the houses of three cowkeepers, and the unsanitary conditions associated therewith. In June, a correspondence took place between the Town Clerk and the Medical Officer of Health on the subject of “risk to

life from possibility of contamination of milk by impure water and liability to its becoming infected with Zymotic poison in the houses of the dairykeepers”* The Medical Officer of Health gave the names of certain persons whose business is carried on at a risk to life from the cause named in the first part of the inquiry of the Town Clerk, and showed the need of further legal power to deal with the subject of liability to infection of milk with Zymotic poison, in support of which he stated that he was prepared to give numerous instances where, in case of Zymotic disease occurring in the families of cowkeepers, the milk would be extremely liable to become infected.

Samples of the water from several pumps and springs in connection with cow-houses were afterwards drawn and analysed by the Borough Analyst, and none were found to come up to the standard of good water. An account of these is given under the heading “Well Waters.” The Medical Officer of Health recommended that steps be taken to close two of these wells, both of which had been condemned during the year before, but were still used. This was in August. There had previously been a case of pleuro-pneumonia in the byre supplied by one of the wells. In September pleuro-pneumonia broke out in the byre supplied by the other well, and carried off four cows. In two other byres supplied by well-water of doubtful quality the disease attacked seven cows. In accordance with advice previously given by the Medical Officer of Health, the Committee then applied to the Privy Council for the much-needed power to make regulations for cow-houses and other places connected with the public milk supply—those byres in which the before-mentioned epizootic had appeared, and others, being known to be in very bad sanitary condition. The Daries, Cowsheds, and Milkshops Order of 1879 may be regarded as practically the answer to this application. The amount of compensation given in twelve months to the owners of the cattle at the byres supplied by the four wells above mentioned is £107 10s. The total cost to the Corporation of compensation to owners for cattle slaughtered on account of pleuro-pneumonia during the thirteen months ending 1st February, 1879, is £206 15s.; the number of animals affected is 36.

(10.)—CLEANSING OF PRIVIES AND MIDDENS.

In July, the attention of the Committee was directed as follows:—“To the method adopted for the emptying of the Middens and Ashpits in the Borough. The contents of these are thrown upon the ground of lanes and

* See Annual Report of Medical Officer of Health, 1877, p. 15.

back streets and remain there for a considerable time until the arrival of the cart for their removal. This system is at all times objectionable, and the smell is offensive to passengers as well as residents. On two occasions recently the smell from midden-refuse emptied on front streets has been offensive at a distance of about a hundred yards. There was no appearance of the use of chloride of lime in either case."—Very many of the middens in the Borough are large and uncovered, and receive the rain falling on the roofs of privies, so that the ashes and soil are almost constantly wet and offensive, and the stench at, and for a considerable time after, cleansing is intolerable. As it is important that, before deciding on the subject, the Committee should have information as to the different modes of dealing with night-soil and house-refuse for comparison with the method in use in this Borough, the Medical Officer of Health asked for instruction to make a Special Report thereon.

(11.)—REMOVAL OF DEAD BODIES.

The removal of eleven bodies to the dead-house, at the instance of Relieving Officers, has been reported. This practice, which has previously been referred to, continues to be required by these officers declining to bury the bodies of poor persons unless their removal to the dead-house is applied as a test to the relatives and friends, all of whom object strongly to the proceeding. Not unfrequently subscriptions are raised among acquaintances of the deceased to avoid this.

(12.)—WELL WATERS.

Twenty-eight samples of water from wells and springs have been submitted to the Borough Analyst for examination during the year. These were drawn from twenty-two sources, of which fifteen were at, or in connection with, cow-byres, two were from public wells, and the rest from springs belonging to private houses. Second samples were taken later for comparison from six of the wells. The analyses show that not one of the samples reaches the standard of good water. There was a large amount of solid matter in solution in all of the samples. In six the quantity was upwards of 80 grains per gallon, in ten others it was above 50 grains, and in none was it below 40 grains. *Chlorine* was found at the rate of upwards of 5 grains per gallon (very suspicious) in five samples; 4 grains and under 5 (suspicious) in four samples; and 2 grains and under 4 (doubtful) in thirteen samples. *Free Ammonia* was found in excess in one sample only (0.170 gr. per gallon) very bad. Of *Albuminoid Ammonia*, one sample contained 0.022 grains per gallon (very bad), one 0.020 grains (this was

the sample with the large amount of free Ammonia). In five samples the amount ranged from 0.011 to 0.14 grains (bad); in two others it was 0.090 grains and upwards (suspicious); in seven others it was 0.070 grains and upwards (very doubtful); and in nine others 0.04 grains (doubtful). Classifying the different waters by the above standard, according to general analysis of each, one is very bad; six are bad; one is very suspicious; eight are suspicious; one is very doubtful; and the remainder are of doubtful quality. The above analyses show only partially the unwholesome condition of our well waters. In urban districts the quality of the water from shallow springs is subject to considerable variation, as is shown by two of the above samples drawn from the same well at an interval of seven weeks. The first sample contained merely a trace of free Ammonia and 0.006 grain per gallon of Albuminoid Ammonia; the second samples yielded 0.170 grains of free and 0.020 grains of Albuminoid Ammonia. The two samples were drawn from a well at one of the insanitary cow-byres previously referred to, and the second was beyond doubt contaminated with sewage which appears to have come from the byre. This liability to variation in quantity, which is characteristic of the waters of most urban wells, makes it highly important to keep all such wells under constant supervision, and where there is any probability of the public milk-supply being contaminated by the rinsing of vessels or otherwise with water therefrom, to close them.

(C.)—ACTION TAKEN.

The following is an account of the action taken during the year to remedy the sanitary defects enumerated in the preceding division of the Report :—

(1.)—PREVENTION OF ZYMATIC DISEASE.

Information of cases of infectious febrile disease continues to be received daily from the Medical Officers of the Dispensary, to whom thanks are due for the regularity with which the returns are gratuitously made. Returns of Deaths from this cause are forwarded by the Sub-registrars by post card, and notice of other cases also occasionally reaches the Health Department. In every instance, as usual, the house of the case is visited by an inspector, and, if necessary, by the Medical Officer of Health. The sanitary condition of the premises and probable cause of the disease are inquired into and dealt with. In this way a total of 467 cases, including 311 of Scarlet Fever, 64 of Enteric Fever, 27 of Typhus, 45 of Measles, 10 of Diphtheria, and 10 of other forms of disease, of which a detailed list is given in the Appendix (Table XVI.), have received attention from this department.

Isolation.—65 patients have been admitted to the Fever Hospital, viz., 13 suffering from Typhus, 26 from Enteric Fever, 14 from Scarlet Fever, and 12 from other diseases.* Of these 46 have been removed by the Medical Officer of Health, of which 33 were admitted at the cost of the Sanitary Authority, and 13 were paupers, 18 were private patients (domestic servants and others), and 1 was sent from the Infirmary. The admissions include all the cases of Typhus previously mentioned ("Advice Given," Section I.) and others. Since the report on the want of accommodation at the Fever Hospital, by the instruction of the Sanitary Committee, the Borough Engineer has prepared plans for a new Fever Hospital in accordance with the views of the Medical Officer of Health, on principles of strict economy and on a scale calculated to meet the requirements of the Borough for the present and for some time to come. The building is designed in block-sections, radiating from the administrative department. Each block will be complete in itself, and when all the blocks are built, which may be done by degrees, will form part of an entire system of hospital accommodation for different epidemic diseases. Each block is intended to contain eighteen beds, of which six will be available for patients in good social circumstances.

Disinfection.—In addition to the disinfection of houses and rooms in which the before-named cases of Zymotic disease have occurred, a large quantity of infected bedding and clothing has been purified in the disinfecting apparatus.† The stove has been worked at a very small cost, and has given every satisfaction. The number of beds and other articles disinfected, although large, is only a small proportion of those coming under the notice of the Inspectors, so that the apparatus is not being used as much as it should be. Infected beds, pillows, etc., cannot be purified in private houses; and any fumigation of rooms and their contents is futile so long as the bed continues infected. It is therefore important that all such articles should be removed by the Inspectors to the stove where, without risk of being damaged, they will be gratuitously rendered again fit for use. A comparatively small amount of infected bedding, unfit for disinfection, has been destroyed and replaced at the cost of the Sanitary Authority (Table XV.). As many poor persons, whose bedding is removed to the disinfecting stove, are without substitutes in the meantime, authority has been obtained to lend such articles from the Fever Hospital in extreme cases. The gratuitous disinfection of infected articles from private houses was approved by the Sanitary Committee.

* See Appendix, Table XIII.

† A list is given in the Appendix, Table XV.

With respect to the outbreaks of Zymotic disease in different parts of the Borough, referred to under the head of "Advice Given," the action taken has been as follows :—On the occurrence of that of Scarlet Fever at Liverpool Street, in June, beside the usual disinfections, which were done in all cases, the Medical Officer of Health visited the schools in the neighbourhood and recommended the principals of such as were not closed for holiday to exercise caution as to the admission of scholars from infected houses.

At Chimney Mills, the milkman was cautioned ; the defective ventilation of the rooms and staircases continues as before. At Pottery Bank the privy middens are reported as having been drained only. At the dairy, No. 8, Barrack Road, the privy and midden are reported as having been "reconstructed," and the branch drain for the byre as having been cemented. No other action has been taken to remedy structural and other defects. At the dairy in Stowell Street, the drain is reported as having been relaid with sanitary pipes ; the defects of byre and midden continue. In the case of Fever at a meat-pie maker's, the pies on the premises, seven dozen and eleven in number, were seized and destroyed by Justices' Order, and compensation was given to the owner for the loss sustained. At Back Molyneux Street and Cook Street, Byker, the paving and drainage are in progress. At 13, Pitt Street the ventilation of the room and passage continues as before. At 12, Lisle Street, no action has been taken to prevent the habitation of the kitchen over the stable, for the alleged reason that it is "not used as a sleeping room." The recommendation to institute and keep a general sanitary register for the Borough was not acted on.

(2.)—ARTIZANS AND LABOURERS DWELLINGS.

Old Pandon Group.—The sanitary improvement of a large part of this group by the demolition of old property in Pandon Bank and Stock Bridge for the formation of a new street has been alluded to. In Pandon, the water-closet beneath a living-room at No. 2 has been merely ventilated, and is not closed, the reason alleged by the Inspector being that there is "no place to construct the closet elsewhere." The room continues to be inhabited. At No. 12, proper action has been taken and remedies applied. At Cherry's Entry, the rooms were closed and repaired, and are now re-occupied. The defective closet at Sweeps' Entry has been repaired. The overcrowding at Tinner's Entry has been abated. At Wall Knoll five rooms have been closed.

(3.)—TENEMENT PROPERTY IN BLOCK.

In Sandgate, etc., fifteen rooms have been closed ; several water-closets and drains have been repaired. At *Eddy's Entry* a closet previously closed has been re-opened. At *Nag's Head Entry* the roof of the damp house has been repaired. At *Cellars* and *Wrangham's Entries* and *Chapel Lane*, the deficiency of conveniences has been allowed to remain unremedied, because there is “no place to construct additional closets.” The closets in the interiors of houses at *Chapel Lane* and *Wood Entry* have not been removed. At *Young's Entry* “nothing has been done, as the property has twice changed hands since the notice was served.”

At *Kidman's Buildings*, Byker Hill, the yards have been drained.

Tenement Property on Byker Bank.—A Sub-Committee inspected this property, and reported thereon to the Sanitary Committee. The group is since reported as having been dealt with as follows :—*Freeman's Court* repaved ; drainage altered and repaired ; cellar dwellings closed ; water-closet at beerhouse in *Leighton Street* merely ventilated ; open gutter converted into a “freestone channel ;” the drains of the damp houses in *Ripponden Street* relaid or repaired ; rooms unfit for habitation closed ; overcrowding abated ; the want of ventilation from structural defects of yards and houses remains as before.

At *Byker Village* there is still no drainage.

St. Peter's.—On the instruction of the Sanitary Committee, who inspected St. Peter's in July, the Borough Engineer has surveyed this group of tenement streets, and has prepared plans and a report showing how the sanitary defects may be remedied.

At *Stepney Terrace* the privies and middens have been abolished, and ash-closets provided.

At 3, *Stepney Lane* the drainage has been rectified.

At *Mackford's Entry*, Northumberland Street, action has been delayed on account of the severe weather.

At *Barrack Square*, the defects of spouting and footways only are reported as having been remedied.

At *Buckingham Street*, the Inspector of Nuisances reports that “notices have been served for the whole of the defective drains to be relaid with sanitary pipes ; privies and ashpits to be removed ; and water- or ash-closets to be provided as the case requires.” Some of the damp rooms are to be closed ; others are to be made habitable. Since the serving of notices it is reported that two of these rooms have been dealt with. The overcrowding has been abated ; the defective yards have been cemented,

or are in progress; the offensive middens and some of the drains have been relaid. The defective ventilation of yards, staircase, and well-rooms is as before.

At *Stowell Street* (north-west side) the Inspector reports that notices "have been served for the whole of the works required," and that they have been carried out.

At *Dunn Street, Scotswood Road*, action has been delayed pending negotiation for the transfer and possible demolition of the property. As regards the discharge of steam into the sewer, the Sanitary Committee gave instructions that the Gas Company should be communicated with. The discharge of steam continues.

(4.)—DEFECTS OF OTHER TENEMENT PROPERTY.

The following is an account of results under the different heads of advice given in this division:—

1.—*Want of Closet Accommodation*—Continues as before at 10, No. 1 Court, Stowell Street, and Castle Garth. The Heber Tower is to be closed by order of a Justice.

2.—*Defective Closet Accommodation* has been remedied at 37, Groat Market; at 17, Friars, the closet has merely been cleansed. Notices have been served for closets at Liverpool and Cook Streets; the closets at the remaining places continue as before, the Inspector reporting that "there is nowhere else to place them."

3.—*Want of Accommodation for House Refuse*.—37, Liverpool Street, no improvement; No. 1, Mushroom, house closed.

4.—*Offensive open Midden*.—Removed, and water-closet put in at 24, Upper Buxton Street; as before, at 19, Gallowgate.

5.—*Yard Paving or Drainage defective*.—Dunn's Buildings, paved. No report of work done at the other places.

6.—*Cowhouse and Stable* at Headlam Street.—Premises drained.

7.—*Offensive Cow-dung Middens*.—Left over, pending the formation of Regulations for Dairies and Cow-sheds.

8.—*Deposits of Refuse*.—Removed.

9.—*Defective Urinal*.—Notice served to remedy; no further report.

10.—*Offensive Stable*.—Improved.

11.—*Defective House Drainage*.—Improved at 6, Wellington Terrace; No. 1 Court, Patterson's Court; 19, Gallowgate; and Chapel Yard, Tuthill Stairs; the rooms have been closed at 16, St. Lawrence Square; at 87, Grafton Street, notice served to provide gully trap; no report of any work having been done at the remaining places.

12.—*Deficient Water Supply.*—Water provided at 7, Silver Street; in the remaining cases the houses were closed for other reasons.

13.—*Sleeping or Living Room over Stable.*—At 12, Lisle Street, as before; at Collier's Entry, the room has been closed.

14.—*Room offensive from Cow-byre.*—Use of byre discontinued.

15.—*House Cesspool.*—Removed, the drain being continued to the common sewer.

16.—*Water-Closet near middle of House.*—At 21, Dog Bank, ventilated; at 2, Bell's Court, no action reported.

17.—*Dirty Passages.*—Whitewashed.

18.—*Staircases defectively ventilated*—At 10, Queen's Lane, nothing done; at 1, Dog Leap Terrace, and 21, Dog Bank, the ventilation has been improved.

19.—*Dark Staircase.*—At 10, Queen's Lane, nothing done.

20.—*Overcrowding.*—Abated in one case; in the other as before, the family not yet being free from infection, the disease having affected several of the children.

21.—*Dark Rooms.*—At Alderson's Entry, one closed, and the use of the other as a bedroom discontinued; at Horn's Yard, notice has been served to close the room.

22.—*Rooms defectively ventilated.*—At Carlton Street, as before; at Alderson's Entry, closed.

23.—*Damp Rooms.*—At No. 1 Court, and 8, Tuthill Stairs, the spouts or drains have been repaired; at Dunn's Place, the yard has been paved; 2, Gouldburn's Yard, and Horn's Yard, notices have been served to close the rooms; no report has been received of the room in Castle Garth; the remaining rooms have been closed, or are not now used for habitation.

(5.)—POISONOUS WALL PAPER.

Action taken, already described.

(6.)—TANNERY.

The owner of the offensive Tannery was summoned before the Justices and ordered to abate the nuisance, which was done. The Tannery has since been kept under supervision.

(7.)—OLD QUARRIES.

It is to be regretted that no improvement has taken place as regards the deposits of refuse for "made ground."

(8.)—SLAUGHTER-HOUSE REFUSE REMOVAL

has been carried out more efficiently.

(9.)—DAIRIES AND COW-HOUSES.

Under the Dairies, Cowshed, and Milkshops Order, 1879, the Medical Officer of Health has drawn up a set of regulations which waits the consideration of the Sanitary Committee.

(10.)—THE CLEANSING OF PRIVIES AND MIDDENS

continues to be carried on as before. Various schemes for the disposal of the town refuse have been considered by the Sanitary Committee. The carriage of all the refuse out to sea in hoppers, although the simplest and least offensive mode of getting rid of the material, is objected to on the ground of expense and loss of manure, for which a ready sale is found at certain seasons of the year. The plan approved by the Committee is to continue to sell the manurial portion of the refuse, and to burn the remainder. An experimental furnace will shortly be constructed for the purpose by the Borough Engineer. Provided that the process is carried on so as not to cause a nuisance, which will require careful separation of the different substances from each other, there can be no objection to it from a sanitary point of view.

(11.)—REMOVAL OF BODIES TO DEAD-HOUSE

has been effected in eleven instances, at the expense of the Sanitary Authority.

(12.)—WELL WATERS.

One well only has been closed, viz., that yielding the water described as “very bad.” The water, in addition to being used at a dairy and a private house, was much sought after in consequence of its high but undeserved reputation. At the request of the Sanitary Committee one of the members of the Committee and the Medical Officer of Health called on the tenant of another dairy and informed him that his well must be closed as the water was unfit for drinking purposes, and that the Company’s water must be laid on. As no action followed this proceeding, notice was then served to close the well.

In two other cases where the impure samples were drawn from wells at private houses supplied also with the Company’s water, the Medical Officer of Health, by the instruction of the Sanitary Committee, called on the tenants and recommended that precaution be taken to prevent the use of the well water for drinking or cooking purposes.

(13.)—NUISANCE REMOVAL.

The various nuisances in the Borough dealt with by the Inspectors during the year, and including the sanitary defects of houses already given (Sections 3 and 4), make a total of 2,908 cases. (Appendix, Table XVII.) This is the lowest number recorded of an annually-decreasing series during the past five years, that in 1874 having been 5,335. A decline has occurred in every ward of the Borough except Byker, where the number of cases is nearly treble that of the last preceding, and much in excess of any previous, year. The number of cases heard before the Magistrates during 1878 (44) is also comparatively small, being less than half that of the last preceding year, and less than one-fourth that of any of the three previous years.

(14.)—SUSPECTED AND UNWHOLESOME PROVISIONS.

A list of provisions found unfit for food and destroyed is given in the Appendix (Table XIV.), which does not call for special comment, except to mention that no fruit has been destroyed as unfit for food. As cherries and other fruit during the season arrive at the quay in large quantities, sometimes more or less decomposed, considerable difficulty is experienced with respect to the action to be taken in cases where good fruit is mixed with bad, so as to require a longer time for separating the one from the other than is readily available whilst the sale is going on. The brokers and large dealers in fruit consider that an exception should be made in their case; on the other hand, purchasers of such decomposed fruit in basket or box complain that the sale of it is not prevented, if disappointed in the quantity of what they have bought. Much of this mixed unwholesome fruit, if allowed to leave the place of landing, is sold and consumed; if seized, failure to obtain a Justice's order for the destruction of the whole amount may expose the officers of the Sanitary Authority to action for detention of goods and loss of sale.

(D.)—OBSERVATIONS.

In addition to matters referred to in the preceding parts of the Report, the experience of the year has shown the need of legal power which it is desirable should be sought on the next occasion of applying to Parliament:—

1.—To compel the registration of all cases of infectious sickness. The Seventh Annual Report of the Local Government Board states that a large number of memorials in favour of fresh legislation on this subject

have been received by the Board. At Huddersfield, Bolton, and Dundee, legal power for this purpose has been obtained.

- 2.—To prescribe the *mode* of disinfection of infected houses and things.
- 3.—To provide that cistern-wastes shall discharge into the open air, and not join the soil-pipe or drain ; and that the air-pipe of the water closet service-box shall terminate in the open air and not over the cistern.
- 4.—To serve the landlord with notice for defective rain spouts. These are at present served on the tenant.
- 5.—To prevent overcrowding in Sunday schools. In one case under observation the amount of space was only 3 square feet to each child.
- 6.—To compel the ventilation of “well rooms” now existing.

HENRY E. ARMSTRONG, M.R.C.S.,

MEDICAL OFFICER OF HEALTH.

BOROUGH OF NEWCASTLE-UPON-TYNE,
1878.

APPENDIX.

TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR GENERAL TO THE MIDDLE OF THE YEAR)—144,570.

Registration Sub-Districts.	Births Registered in 52 Weeks, ended 28th December, 1878.						Deaths Registered in 52 Weeks, ended 28th Dec., 1878.		
	Male.		Female.		Total.	Male.	Female.	Total.	
	Legiti- mate.	Illegi- timate.	Legiti- mate.	Illegi- timate.					
Westgate ...	1,168	80	1,038	54	2,340	733	616	1,349	
St. Andrew's ...	267	14	258	12	551	203	200	403	
St. Nicholas' ...	154	8	142	16	320	242	139	381	
All Saints' ...	473	31	505	29	1,038	320	301	621	
Byker ...	619	19	578	19	1,235	323	346	669	
Borough Total	2,681	152	2,521	130	5,484	1,821	1,602	3,423	

The Births represent a rate of 38.8, and the Deaths a rate of 23.7, per 1,000 estimated population. The Increase of Births over Deaths is 2,061.

TABLE II.

ANNUAL DEATH RATE PER 1,000 LIVING IN NEWCASTLE FOR THE PAST FIVE YEARS, COMPARED WITH THE AVERAGE RATE IN 23 TOWNS OF THE UNITED KINGDOM.

	1874.		1875.		1876.		1877.		1878.	
	Annual Average in 23 Towns	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.	Annual Average in 23 Towns.	Annual Rate in Newcastle.
1st Quarter	25.6	29.1	29.6	27.4	26.8	25.5	24.7	24.2	25.5	23.2
2nd „	22.9	24.9	23.5	22.7	23.0	21.8	23.9	23.2	23.2	22.0
3rd „	24.5	31.6	23.7	28.9	22.7	22.6	20.5	20.2	23.5	25.4
4th „	28.9	31.7	25.3	25.4	22.4	21.2	23.0	21.8	25.2	24.1
Annual Rate	25.5	29.2	25.4	26.1	23.7	22.7	23.0	22.3	24.4	23.7

TABLE III.

DEATHS FROM ALL CAUSES IN EACH SUB-DISTRICT ACCORDING TO ORDER OF CLASSIFICATION OF THE REGISTRAR GENERAL.

ORDER.	Westgate.	St. Andrew's	St. Nicholas*	All Saints'	Byker.	TOTALS.	
	Number of Deaths.	Number of Deaths.	Number of Deaths.	Number of Deaths.	Number of Deaths.	Deaths from all causes.	Percentage of Total Deaths in each of the different orders to total deaths from all causes.
CLASS I.							
ZYMOTIC DISEASES.							
1. Miasmatic	267	74	62	118	183	704	20·6
2. Enthentic	6	2	4	3	5	20	0·6
3. Dietic	9	5	3	6	2	25	0·7
4. Parasitic	1	...	1	...	1	3	0·09
	— 283	— 81	— 70	— 127	— 191	— 752	— 22·0
CLASS II.							
CONSTITUTIONAL DISEASES.							
1. Diathetic... ...	34	13	11	9	10	77	2·2
2. Tubercular	221	61	59	115	73	529	15·5
	— 255	— 74	— 70	— 124	— 83	— 606	— 17·7
CLASS III.							
LOCAL DISEASES.							
Diseases of—							
1. Nervous System... ...	179	47	34	67	80	407	11·6
2. Organs of Circulation ...	54	30	34	28	43	189	5·5
3. Respiratory Organs ..	170	44	40	94	104	452	13·2
4. Digestive Organs ...	59	20	15	28	17	139	4·0
5. Urinary Organs ...	18	6	20	3	7	54	1·6
6. Organs of Generation ...	2	...	1	...	...	3	0·09
7. Organs of Locomotion...	...	2	2	...	3	7	0·2
8. Integumentary System...	2	...	...	3	1	8	0·2
	— 484	— 151	— 146	— 223	— 255	— 1259	— 37·0
CLASS IV.							
DEVELOPMENTAL DISEASES.							
Diseases of—							
1. Children	62	14	6	19	25	126	3·7
2. Adults	10	4	1	5	7	27	0·8
3. Old People	75	28	8	28	18	157	4·6
4. Nutrition... ...	90	23	17	46	43	219	6·4
	— 237	— 69	— 32	— 98	— 93	— 529	— 15·4
CLASS V.							
VIOLENT DEATHS.							
1. Due to Accidents and Negligence	17	7	32	14	20	90	2·6
2. Due to Homicide	1	...	1	...	...	2	0·06
3. Due to Suicide	7	1	3	1	1	13	0·4
4. Due to Executions ... ...	...	...	...	...	...	...	0·0
	— 25	— 8	— 36	— 15	— 21	— 105	— 3·07
Violent Deaths not classed	8	4	11	4	5	32	0·9
Sudden Deaths (causes unascertained) ... ...	...	...	...	...	...	...	0·0
Causes not specified or ill-defined	57	16	16	30	21	140	4·09
	— 65	— 20	— 27	— 34	— 26	— 172	— 5·02
Totals	1349	403	381	621	669	3423	

* The number in St. Nicholas' sub-district is increased by 129 deaths in the Infirmary, and 12 in the Fever Hospital; 63 of the former came to that Institution from beyond the Borough.

TABLE IV.

RATES OF DEATH IN THE DIFFERENT CLASSES OF DISEASE PER 1,000 POPULATION IN THE BOROUGH, AND IN EACH REGISTRATION SUB-DISTRICT.

A.D. 1878.	Westgate (V.W.)* excluding Benwell and Fenham.	St. Andrew's.	St. Nicholas' (H.)†	All Saints'.	Byker.	Borough.
Population estimated ...	65,270	19,850	10,381	28,772	20,297	144,570
CLASS.	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000	Rate per 1,000
1. Zymotic‡	4.3	4.0	6.7	4.4	9.4	5.2
2 Constitutional	3.9	3.7	6.7	4.3	4.0	4.2
3. Local	7.4	7.6	14.0	7.8	12.5	8.7
4. Developmental	3.6	3.5	3.0	3.4	4.5	3.7
5. Violent Deaths (classed)	0.4	0.4	3.5	0.5	1.0	0.7
6. Do. (not classed)	0.1	0.2	1.0	0.1	0.2	0.2
Sudden Deaths (causes unascertained, causes not specified, or ill- defined) ..	0.9	0.8	1.5	1.0	1.0	1.0
Totals	20.6	20.2	36.4	21.5	32.6	23.7

* Workhouse and Vagrant Ward. † Hospital.

‡ The deaths in the Zymotic Class are corrected by distribution of those occurring at the Fever Hospital to the sub-district from which each came.

TABLE V.—AGES AT DEATH.

Periods.	Westgate.	St. Andrews'.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.
Under 1 Year	355	86	56	170	221	888
1 Year and under 5 Years ...	223	68	42	129	154	616
5 Years „ 20 „ ...	128	30	45	57	71	331
20 „ „ 40 „ ...	178	52	78	74	66	448
40 „ „ 60 „ ...	202	67	107	89	72	537
60 „ „ 80 „ ...	227	80	48	83	70	508
80 „ and above ...	36	20	5	19	15	95
Total (all ages) dying during the 52 weeks ended Dec. 28th, 1878	1349	403	381	621	669	3423

TABLE VI.

WEEKLY MEAN NUMBERS OF DEATHS AT SEVEN ÆTAL PERIODS.

	Westgate.	St. Andrews'.	St. Nicholas'.	All Saints'.	Byker.	Total in Borough.
Under 1 Year	6.8	1.7	1.0	3.3	4.2	17.0
1 Year and under 5 Years ...	4.3	1.3	0.8	2.5	3.0	11.8
5 Years ,,, 20 ,,, ...	2.5	0.6	0.9	1.0	1.4	6.4
20 ,,, 40 ,,, ...	3.4	1.0	1.5	1.4	1.3	8.6
40 ,,, 60 ,,, ...	4.0	1.3	2.0	1.7	1.4	10.3
60 ,,, 80 ,,, ...	4.4	1.5	0.9	1.6	1.3	9.8
80 ,,, and above ...	0.7	0.4	0.0	0.4	0.3	1.8
Totals	26.1	7.8	7.1	11.9	12.9	55.7
Percentage of Deaths under 1 Year to total Deaths in Sub-District, &c. ...	26.3	21.3	14.7	27.2	33.0	26.0

TABLE VII.

BIRTHS AND DEATHS IN THE DIFFERENT QUARTERS IN THE YEARS
1875, 1876, 1877, 1878.

	BIRTHS.				DEATHS.			
	1875.	1876.	1877.	1878.	1875.	1876.	1877.	1878.
First Quarter	1,447	1,553	1,485	1,399	942	890	858	838
Second ,,,	1,346	1,392	1,418	1,376	778	761	825	796
Third ,,,	1,386	1,396	1,361	1,394	992	792	719	917
Fourth ,,,	1,407	1,473	1,346	1,318	876	740	776	872
Total	5,586	5,814	5,610	5,487	3,588	3,183	3,178	3,423

TABLE VIII.

DEATHS OF CHILDREN UNDER 1 YEAR, AND PERSONS OVER 60 YEARS,
IN 1875, 1876, 1877, AND 1878.

	NUMBER OF DEATHS.									
	Under 1 Year of Age.				Over 60 Years.					
	1875.	1876.	1877.	1878.	1875.	1876.	1877.	1878.		
First Quarter	220	235	202	208	212	188	197	125
Second	„	„	192	216	193	158	157	127	153	138
Third	„	„	383	301	235	311	140	114	127	106
Fourth	„	„	255	219	212	211	156	135	146	139
Total	1,050	971	842	888	665	564	623	508

TABLE IX.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS
ENDED 28TH DECEMBER, 1878.

CLASS.	CAUSE OF DEATH.							TOTAL.
		Westgate.	St. Andrew's.	St. Nicholas.	All Saints'.	Byker.		
ORDER 1.								
Measles	4	...	...	5
Scarlet Fever (Scarlatina)	3	...	1	4	2	10
Croup	1	...	2	1	4
Whooping-cough	6	4	3	6	29
Enteric or Typhoid Fever	1	1
Erysipelas	4	...	...	1	5
Diarrhoea	53	12	8	24	36
Other Zymotic Diseases	1	...	...	...	1
ORDER 2.								
Syphilis	2	2	2	3	14
ORDER 3.								
Privation	1	...	1
Want of Breast-milk	4	2	...	1	7
ORDER 4.								
Thrush	1	...	1	3
ORDER 2.								
Scrofula	11	1	3	16
Tabes Mesenterica	10	2	6	31
Phthisis	2	1	...	4
Hydrocephalus	1	1	1	4
Carried forward	103	25	21	50	268

TABLE IX.—CONTINUED.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS
ENDED 28TH DECEMBER, 1878.

CLASS.	CAUSE OF DEATH.	Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	TOTAL.
	Brought forward	103	25	21	50	69	268
	ORDER 1.						
	Cephalitis ... ... ...	...	...	...	...	1	1
	Convulsions	49	11	10	19	15	104
	<i>Brain Disease, etc.</i>	3	1	...	6	10	20
	ORDER 3.						
	Laryngitis	1	...	...	2	...	3
	Bronchitis	33	8	4	18	37	100
	Pneumonia	5	...	1	6	3	15
	<i>Lung Diseases, etc.</i>	7	...	...	...	2	9
	ORDER 4.						
	Enteritis	2	...	...	...	1	3
	Peritonitis	2	...	...	1	1	4
	Hernia	1	...	...	...	...	1
	Jaundice	2	1	...	...	2	5
	<i>Liver Disease, etc.</i>	1	...	...	...	...	1
	ORDER 5.						
	<i>Kidney Disease, etc.</i>	1	...	...	...	...	1
	ORDER 8.						
	Ulcer ... ... ...	...	...	...	1	...	1
	<i>Skin Disease, etc.</i>	2	...	...	...	1	3
	ORDER 1.						
	Premature Birth	33	7	3	17	15	75
	Spina Bifida	3	...	1	...	...	4
	Other Malformations	2	2	...	...	...	4
	Teething	14	2	1	...	4	21
	ORDER 2.						
	Childbirth	1	1	...	...	3	5
	ORDER 4.						
	Atrophy and Debility	73	18	10	39	38	178
	ORDER 1.—(ACCIDENT OR NEGLIGENCE.)						
	Suffocation	5	1	4	7	11	28
	ORDER 4.—(EXECUTION.)						
	Violent Deaths (not classed) ...	2	...	...	...	2	4
	Causes not specified or ill-defined ...	15	5	1	3	6	30
	Representing a rate of 6.1 { per 1,000 per Annum. } TOTAL ..	360	82	56	169	221	888

TABLE X.

NON-CERTIFIED* DEATHS IN EACH SUB-DISTRICT DURING THE 52 WEEKS ENDED
28TH DECEMBER, 1878.

ALLEGED CAUSE OF DEATH.	Westgate.		St. Andrew's.		St. Nicholas'.		All Saints'.		Byker.		Total.	
	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.
Scarlet Fever	1	...	1	...	...	...	...	...	...	2
Remittent Fever	1	...	1
Diarrhoea	1	...	...	1
Whooping Cough	1	...	1
Asthma	1	...	...	1
Bronchitis	...	1	...	1	1	1	...	1	...	3	1	1
Inflammation of the Lungs and Whooping Cough	1	...	...	...	...	...	...	1	...	...
Having broken a blood vessel from severe coughing	1	...	...	...	...	...	...	...	...	1
Inflammation of Lungs and Bowels through excessive drinking	1	...	...	...	...	...	...	...	...	1
Phthisis	1	...	...	...	...	...	...	...	1
Convulsions	...	6	1	2	3	...	3	2	2	16	1	2
Convulsive Fit	...	1	...	...	...	...	...	1	...	2	...	1
Apoplectic Fit	1	...	1
A Fit	1	1	...	1
Paralysis	1	...	...	...	...	...	...	1
Mesenteric Disease	1	...	...	1	1	...	2
Dentition	...	1	...	...	...	...	...	...	...	...	1	...
Heart Disease	1	...	...	...	...	...	...	...	...	1
Premature Birth	...	9	...	...	...	...	...	5	...	...	14	...
Debility	...	1	...	...	...	1	1	6	...	1	9	1
Exhaustion	1	...	1	...
Dropsy	1	...	...	...	...	...	...	1
Found Drowned	1	...	...	...	...	...	...	1
Being accidentally Overlaid	2	...	2	...
Senile Decay	1	...	1	...	...	...	...	...	...	2
Bursting of a Blood Vessel	1	...	...	...	...	...	...	...	...	1
Supposed from the bursting of an Ulcer in the Bowels	1	...	1
Supposed Bronchitis	...	1	...	...	...	...	...	...	...	...	...	1
Suddenly, believed from a Convulsion	1	...	...	...	...	...	1
Supposed from a Convulsion	1	...	...	1
Supposed Apoplexy	1	...	...	...	...	...	...	1	...	2
Supposed from some natural cause	1	6	...	1	6
Supposed from Hæmoptysis	1	...	...	...	1
Supposed from want of proper food and warmth	1	...	...	...	1
Carried forward	...	19	2	9	5	...	8	6	1	15	1	11
											6	1
											8	51
											5	36

* The term "Non-Certified" does not include Inquest cases, or cases certified by unqualified practitioners, but is applied only to deaths unattested by any medical attendant whatever, and on which no inquest has been held.

TABLE X.—CONTINUED.

NON-CERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 52 WEEKS ENDED 28TH DECEMBER, 1878.

ALLEGED CAUSE OF DEATH.	Westgate.			St. Andrew's.			St. Nicholas'.			All Saints'.			Byker.			Total.		
	Under 1 Year.			1 Year and Under 2.			2 Years and Above.			Under 1 Year.			1 Year and Under 2.			2 Years and Above.		
Brought forward...	19	2	9	5	...	8	6	1	...	15	1	11	6	1	8	51	5	36
Supposed to be the effect of drinking to excess	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Supposed from Scarlet Fever	...	...	2	...	...	...	...	...	...	...	2	...	...	1	...	...	...	5
Supposed from a Fit	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Apoplexy or some other natural cause	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Effect of Ulcers in Stomach	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Suddenly, from Weakness and an accidental fall	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Some natural cause arising from old age	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Unknown ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Natural Cause ...	3	...	3	...	1	...	...	1	...	...	1	...	...	5	3	1	10	
Said to be Premature Birth	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
Total ...	22	2	17	6	1	9	7	1	1	15	1	16	6	1	14	56	6	57

TABLE XI.

RETURN OF DEATHS FROM MIASMATIC DISEASES FOR THE 52 WEEKS ENDED 28TH DECEMBER, 1878, CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE FEVER HOSPITAL TO THE REGISTRATION SUB-DISTRICT FROM WHICH EACH CAME.

	Number in Entire Borough.	REGISTRATION SUB-DISTRICTS.				
		West-gate.*	St. Andrew's	St. Nicholas'	All Saints'	Byker.
Total Miasmatic Deaths ...	704	268	76	54	121	185
INCLUDING—						
Small-pox ...	...	”	”	”	”	”
Measles ...	...	17	10	1	...	1
Scarlet Fever ...	...	219	74	35	15	38
Diphtheria ...	...	19	12	2	2	1
Whooping Cough ...	...	87	26	6	10	16
Typhus Fever ...	...	9	2	...	4	3
Enteric Fever ...	...	52	24	7	3	6
Simple Continued Fever ...	...	10	6	...	1	1
Diarrhoea ...	...	218	77	19	12	46
Other Miasmatic Diseases ...	73	37	6	7	8	15
Annual Rate of Death from Miasmatic Disease per 1,000 population of each sub-district	4.8	4.1	3.8	5.2	4.2	9.1
Do. from Scarlet Fever ..	...	1.5	1.1	1.8	1.4	1.3
Do. from Whooping Cough ...	...	0.6	0.4	0.3	1.0	0.5
Do. from Enteric Fever ...	...	0.4	0.4	0.4	0.3	0.2
Do. from Diarrhoea ...	...	1.5	1.2	1.0	1.2	1.6

* Excluding Benwell and Fenham.

TABLE XII.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN WESTGATE SUB-DISTRICT.															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHŒA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2	All Ages.
Duke street	1	...	...	...	...	...	...	...	...	...	...	...
Sycamore street	1	1	...	1	...	...	...	...	...	...	1	...	...	1
Panmure street	1	1	...	...	...	...	...	...	...	...	...	...	...
Blandford street	...	3	...	1	1	...	1	...	...	1	...	...	1	1	1	2
Ramshaw street	2	2	...	...	...	...	...	...	...	...	...	...	...
Buckingham street	...	1	...	1	...	...	1	...	...	...	...	...	3	...	...	3
Oak street	1	...	...	...	...	...	...	...	...	...	...	...
Dunn street	2	...	...	...	1	...	...	1
Bayley street	1	...	...	1	...	...	...	...	...	...	...	...
Plummer street	1	...	...	...	...	...	...	...	...	...	...	...
Railway street	1	...	1	...	...	...	...	...
Worley street	1	...	...	...	...	...	...	...	...	...	...	...
Ashfield terrace west	1	...	...	...	...	...	...	...	...	...	...	...
Waterston's quay	1	...	...	...	...	...	...	...
Ivy street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Water street	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Norfolk street	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Workhouse	...	6	1	...	2	1	...	...	...	...	...	...	4	...	...	5
Brunel street	1	...	...	...	...	...	...
Portland street	1	...	...	...	...	...	...	1	...	...	1
Temple street	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Mather street	1	...	...	...	...	1	...	...	...	...	...
Waverley terrace	1	...	...	...	...	...	...
Beaumont street	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Durham street	1	...	...	...	...	...	...
Stanhope street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
York street	1	...	...	...	...	...	...
Duke street	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Budle street	1	...	...	...	...	...	...	...	...	...	...
Barrack square	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Byron terrace	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Lawson street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scotswood road	...	1	2	...	...	...	...	...	...	1	...	...	1	...	...	...
Back Marlbro' street	1	...	...	1
Villa place	1	...	...	2
Harle street	1	...	...	1
Handyside's buildings	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Chapel lane	1	...	...	1
Brougham place	1	...	...	1
Waterloo street	1	...	...	...	...	...	...	1	...	...	1
Hedley terrace	1	...	...	1
Hawes street	1	...	...	1
Lord street	1	...	...	1
Garden street	1	...	1
Elswick east terrace	1	...	...	...	...	2	...	...	2
Stone street	1	...	...	...	...	...	...	...	...	1	...	...	1
Carried forward ...	7	19	8	5	13	6	...	2	4	5	2	1	25	2	29	

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN WESTGATE SUB-DISTRICT.— <i>Continued.</i>															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHOEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year	1 Year & under 2.	All Ages.
Brought forward ...	7	19	8	5	13	6	...	2	4	5	2	1	25	2	2	29
Mill street	1	1	1	1
Snow street	1	1	1	1
Diana street	1	1	1	1
Tweed street	1	1	1	1
Clumber street	1	1	1	1
Railway terrace	1	...	...	...	...	...	...	...	...	...	1	1	1	1
Pine street	2	...	...	...	...	...	...	...	...	1	1	1	2
Teynham street	1	1	1	2
Mary street	1	1	1	1
Vale street	1	1	1	1
Mill lane	1	1	1	1
Shot Factory lane	1
Hammond street	1	1	1	1
East parade	1	1	1	1
Cromwell street	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Maple street	1	...	...	...	...	...	...
St. Cuthbert terrace	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Derby street	1	1	1	1
Blenheim street	1	...	...	...	...	...	...	1	1	...	...	...	...	...
Brougham place	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Westmorland road	1	...	...	1	...	1	1	1	1
Campbell street	1	...	...	...	...	1	1	1	1
Grove street	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Pitt street	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Middle street	1	1	1
Linden terrace	1	...	...	...	...	...
Mitford street	1	...	...	...	...	...	...	...	...	...	...	...	...	...
William street	1	1	1
Waterloo place	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Budle street	1	...	...	...	...	...
Penn street	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Park road	1	...	...	...	...	...
Rye hill	1	...	...	...	...	...	...
Longley street	1	...	...	...	...	1	...	...	...	...	...	...	...	...
Rendel street	1	2	...	...	...	...	...	...	...	...	...	...	...	...
Hedley place	1	...	...	...	...	...	...	...	...	...
Suffolk street	1
Bentinck street	1	...	...	...	...	...	...	1	...	...	...	...	...
Oystershell lane	2	...	...	...	...	...	...	...	...	...	...	...	...
Bell terrace	1	...	...	...	...
Westmorland terrace	1	...	...	...	...	...	...	...	...	...	...	...	...
Back George street	1	...	...	...	...	...	...	...	...	...	...	...	...
Loadman street	1	...	...	...	1	...	...	...	...	...	...	...	...
George street	1	...	...	...	1	...	...	...	...	...	...	...	...
Carried forward ...	7	19	20	18	13	6	2	4	4	5	9	4	40	6	50	

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN WESTGATE SUB-DISTRICT.— <i>Continued.</i>															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHOEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward ...	7	19	20	18	13	6	2	4	4	5	9	4	40	6	50	
Seaham street	1	...	...	...	...	...	...	...	...	...	...	...
Maple terrace	1	...	...	...	...	...	...	...	...	...	...	...
Maple street	1	...	...	...	...	...	...	...	...	...	...	...
Low Graingerville	1	...	...	...
Summerhill grove	1	...	...	...	...	...	...	...	...	...	...	...
Low Swinburne place	1	...	...	...	...	...	...	...	...	...	...	...
Back Hammond street	1	...	...	...	...	...	...	...	...	...	...	...
Back Edward street	1	...	...	...	...	...	...	...
Gloucester road	2	...	...	...	...	...	...	...	...	...	...	...
Centre street	1	...	...	...	...	...	...	...	...	...	...	...
De Grey street	1	...	...	...	...	...	...	...	...	...	...	...
Total	7	19	20	28	13	6	2	5	4	5	9	5	40	6	50

DEATHS IN ST. ANDREW'S SUB-DISTRICT.

Spital tongues	...	1	...	1	2	...	...	...	...	...	...	...	...	...	...
Cowgate	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Prudhoe place	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
High Friar street	...	1	1	...	1	...	...	...	...	...	...	...	1	...	1
Percy street	...	1	2	...	...	...	...	...	...	...	1	...	1	...	1
Grainger street	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Pilgrim street	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Porter's court	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Gallowgate	...	1	...	2	1	...	...	...	...	...	...	...	1	1	3
Gladstone street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
High bridge	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Back lane	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Liverpool street	...	...	3	1	...	...	...	...	...	...	...	...	1	...	1
Northumberland street	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Prudhoe street	...	...	1	...	...	...	...	...	...	...	...	...	2	...	2
Clayton street	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Northumberland court	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Northumberland place	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Bulmer street	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Sandyford road	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Patterson's court	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Mackford's entry	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Barracks	...	...	...	...	1	...	...	...	...	...	1	...	1	...	1
St. Thomas' crescent...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Carried forward ...	6	11	6	5	3	...	...	1	1	...	2	...	12	2	15

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN ST. ANDREW'S SUB-DISTRICT.— <i>Continued.</i>															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHOEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year	1 Year & under 2.	All Ages.
Brought forward ...	6	11	6	5	3	...	..	1	1	...	2	...	12	2	15
St. James' street	1	...	...	1	...	...	...	...	...	...	...	...
Leazes terrace	1	...	...	1	
Prudhoe court	1	
Fleece court	1	...	...	1	...	...	...	...	1	...	...	...	...
Morpeth street	1	...	...	...	...	...	...	...	...	...	...	...	...
Gray's yard, Percy st.	1	...	...	...	...	...	...	...	...	...	...	...
Stamfordham place	1	...	...	...	...	...	...	...	...	...	...	...
Byron street	1	...	...	...	...	...	...	...	...	...	...	...
Ellison terrace	1	...	...	...	...
Franklin street	1	...	...	...	...	...	...	...	...	...	...	...
Total	6	11	8	10	3	1	1	1	1	...	2	2	13	2	17

DEATHS IN ST. NICHOLAS' SUB-DISTRICT.

Hogg's yard, Side	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...
Forth terrace	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Castle garth	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Queen's lane	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
High bridge	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Westgate road	...	...	...	1	3	...	...	...	...	...	...	...	...	...	...
Long stairs	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Pink lane	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
St. Nicholas' square	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Grainger street	...	1	...	...	...	...	...	...	...	...	...	1	...	...	1
Orchard street	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Collingwood street	...	2	...	...	...	...	1	...	...	...	...	...	...	...	...
Forth banks	...	1	...	...	...	...	...	...	...	...	...	...	1	1	1
Stowell street	...	...	2	1	...	1	...	...	...	...	...	2	...	2	2
Jones' buildings, Close	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Friars	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Tuthill stairs	...	...	...	...	...	...	...	...	...	...	...	2	...	2	2
Hanover street	...	...	...	1	...	...	...	...	...	...	1	...	...	1	1
Javel groupe, Close	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
St. Nicholas' Churchyd.	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
Cloth market	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
Close	...	...	...	...	...	...	...	...	...	1	...	...	1	1	1
Infirmary	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Fever hospital	...	...	...	...	...	...	...	...	...	1	4	...	...	...	...
Total	4	6	2	3	7	1	2	...	2	1	2	4	8	2	10

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN ALL SAINTS' SUB-DISTRICT.														
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHOEA.		
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2.	All Ages.
New road	...	1	2	...	2	...	...	...	...	...	...	...	1	2	3
Pilgrim street	...	2	1	...	1	1	...	...	...	...	...	...	1	...	1
Blagdon street	1	2	...	...	...	...	...	...	...	1	1	2
Pawton dene terrace	2	...	...	...	...	...	...
Sandgate	1	...	...	...	...	...	...	...	...	...	...
Silver street	1	1	...	...	...	...	...	...	...	...	...
Turner street	1	...	...	...	...	...	...	...	...	...	...
All Saints' churchwalk	1	...	...	...	...	...	...	...	...	...	...
Hewgill terrace	1	...	...	...	...	...	...	...	...	...	...
Holy Jesus hospital	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Richmond street	1	...	...	...	...	...
Carliol street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Cowgate	1	...	...	...	...	...	...	...	...	...
Manors	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Blacksmith's entry	1	...	...	...	...	...	...	...	...	...
Wall knoll	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Ouse street	...	1	...	...	...	1	...	...	...	...	...	...	...	1	1
Heath's court	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Canada street	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Rock street	1	...	...	...	...	...	...	1	...	1
Russell terrace	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1
George's stairs	2
Warburton's buildings,
Lime street	1	...	...	...	...	...	...	...	...	...	...	...	...
Chatham place	1	1
Eddy's entry, New road	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Gibson street	1	...	1
Coburg stairs	1	...	1
Cox's bldgs., Wall knoll	2	...	...	...	...	...	...	...	...	...	...	...
Cox's chare	1	...	1
Stewart's court, Pil-	1	...	...	...	...	...	...	...	...	...	...	...
grim street	1	...	...	...	...	...	...	...	...	...	...	...	...
Albert street	1	...	1	...	1	
Rose and Crown yard	1	...	1
Side	1	...	...	...	...	...	...	...	...	...	...	...	...
Miller's hill	1	...	1
Sarah street	1	...	1
Egypt house, New road	2	2
Bedford place	1	1
Howard street	1
Napier street	1	...	1
Tyne street	1	...	...	...	...	...	...	...	...	...	...	...	...
Tinner's entry, Pandon	1	...	1
Pandon street	1	...	1
Sallyport court	1	...	1
Carried forward ...	3	9	7	4	10	6	...	...	2	1	1	...	16	8	27

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN ALL SAINTS' SUB-DISTRICT.— <i>Continued.</i>															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHOEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward ...	3	9	7	4	10	6	...	...	2	1	1	...	16	8	27
Quayside	1	...	...	...	...	...	...	...	...	...	...	...	...
Grenville street	1	...	...	1	
Stepney lane	1	1	...	...	...	...	...	...	...	...	...	...	...
Cellar'sentry, Sandgate	1	...	...	1	
Painter heugh	1	1	
Camden street	1	
Melbourne street	1	1	
Forster street	1	...	...	...	...	...
Clarence crescent	1	...	...	...	...	...	...	...	...	...	...	...	...
Stepney terrace	2	2	...	...	...	...	...	...	...	...	...	...	...
Argyle place	1	...	1	1	
Barker street	1	1	
Buxton street	2	...	...	...	...	...	...	...	...	...	...	...
Little Blagdon street	1	...	...	...	...	...	...	...	...	...	...	...	...
Victoria terrace	1	...	...	...	...	...	...	...	...	...	...	...	...
St. James' lane	1	...	...	...	...	...	...	...	...	...	...	...
Croft stairs	1	...	...	...	...	...	...	...	...	...	...	...
Milk market	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	3	10	12	13	10	6	2	1	2	...	19	11	34

DEATHS IN BYKER SUB-DISTRICT.

Appleton's buildings...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Headlam street	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1
Byker hill	...	2	...	...	2	...	1	...	...	...	1	...	1	...	1
Bermondsey street	...	...	...	1	1	...	...	...	...	...	...	1	...	1	1
Burdon terrace	...	...	...	...	1	...	...	...	...	...	...	1	...	1	1
Branding village	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Quality row	...	...	...	...	1	...	1	...	...	...	1	1	2	3	
Bryson terrace	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Matthew street	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
East Heaton	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Branding place	...	...	...	...	1	...	...	...	...	...	...	1	...	1	1
Harrison street	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Stepney bank	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Portland road	...	...	1	...	...	...	...	...	...	...	...	1	...	1	1
Thornborough street	...	1	...	...	...	...	...	...	...	...	...	1	...	1	1
Jesmond vale	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
East Heaton farm	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Clifford street	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...
Carried forward ...	5	7	2	5	6	1	1	...	1	...	...	2	6	4	10

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN BYKER SUB-DISTRICT.— <i>Continued.</i>														
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHŒA.		
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward ...	5	7	2	5	6	1	1	...	1	...	...	2	6	4	10
Corbridge street	2	1	...	1	1	1	...	...	...	...	...	...	...
St. Lawrence	...	2	...	...	...	...	...	...	...	...	...	...	1	...	1
Ouseburn road	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Wallace's buildings	1	...	...	...	...	...	...	...	...	...
Addison road	1	...	...	...	...	...	1	...	...	...	...	...
Rosedale street	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Anthony's	3	2	...	...	...	...	...	...	2	...	...	3	3
Shipley street	1	1	2
St. Lawrence house	1	...	...	...	...	...	...	...	...	...	...	...	...
Stepney square	1	...	1
St. Peter's	1	1	3
Cook street	1	...	...	...	...	...	2	...	...	...	1	1
Langhorn street	2	...	2
Morrison street	1	...	1
Elizabeth street	1	...	1
Oswald terrace	1	...	...	...	...	...	...	...	...	...	...	...	...
Parker street	1	...	...	...	1	...	...	...	...	3	1	5
Thompson street	1	...	...	...	1	...	...	...	...	1	...	1
Burton street	1
Bywell terrace	1	...	1
Leighton street	1	...	2
Harvey street	1	...	...	1	1	...	...	...	...	...	...	1
Norfolk road	1	...	...	...	...	2	...	2
Holly street	1	...	...	...	...	...	...	...	...	...	...	...	...
Byker village	1	1
Byker bank	2	2
Wilfred street	1	...	1
Shields road	1	...	...	...	...	...	...	...	...	...	...	...	...
Conyers road	2	...	...	1	...	1	...	...	...	...	...	1	1
Garden cottage, West Jesmond	1	...	1
Bryson street	1	1
Addison street	1	1	...	...	...	...	...	...	...	...	...	...	...
Tynemouth road	1	...	...	...	...	...	...	...	...	1	...	1
Elmbank villa	1	...	1
Molyneux street	2	...	...	...	...	...	...	...	...	...	1	...	1
Grafton street	3	...	...	...	...	...	...	...	...	...	1	...	1
Porter's hill	1	1
Robinson street	1	...	...	...	...	...	...	...	...	...	...	...	...
Shipley street	2	...	...	...	...	1	...	1
Flora street	1	...	1
Ballast hills	1	...	...	...	...	...	...	...	...	...	...	...
Jesmond road	1	...	...	...	...	...	...	...
Clayton Park square	1	...	...	...	...	...	...	...
Carried forward ...	5	12	20	16	6	4	3	10	1	1	2	5	29	17	51

TABLE XII.—CONTINUED.
LOCALITY OF DEATHS FROM PREVALENT ZYMIC DISEASES.

LOCALITY.	DEATHS IN BYKER SUB-DISTRICT.— <i>Continued.</i>															
	SCARLET FEVER.				WHOOPING COUGH.				ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	During 13 Weeks ended 28th Sept., 1878.	Under 1 Year.	1 Year & under 2.	All Ages.
Brought forward ...	5	12	20	16	6	4	3	10	1	1	2	5	29	17	51	
Warkworth street	1	...	...	...	...	...	...	...
Jesmond vale	1	...	...	1	...	...	...	...	...	...	...	...
Rosedale terrace	1	...	...	...	...	...	...	...	...
Belvedere street	1	...	...	...	...	...	...	...	...	...	...	...
Fairless street	1	...	...	...	...	...	...	...	...	...	...	...
Byker street	1	...	...	...	...	...	...	...	...	...	...	...
Felton street	1	...	...	...	...	...	...	...	...
Stepney road	1	...	...	...	...	...	...	...	...
Wansbeck terrace	1	...	...	...	1	...	...	...	...	...
Total	5	12	20	20	6	4	4	15	1	1	2	6	29	17	51

SUMMARY OF TABLE XII.

REGISTRATION SUB-DISTRICTS.	SCARLET FEVER.					WHOOPING COUGH.					ENTERIC (OR TYPHOID) FEVER.				AUTUMNAL DIARRHEA.			
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	Under One Year.	One Year and under Two Years.	All Ages.
Westgate ...	7	19	20	28	74	13	6	2	5	26	4	5	9	5	23	40	6	50
St. Andrew's ...	6	11	8	10	35	3	1	1	1	6	1	...	2	2	5	13	2	17
St. Nicholas' ...	4	6	2	3	15	7	1	2	...	10	2	1	2	4	9	8	2	10
All Saints' ...	3	10	12	13	38	10	6	...	...	16	2	1	2	...	5	19	11	34
Byker ...	5	12	20	20	57	6	4	4	15	29	1	1	2	6	10	29	17	51
Grand Total } of Deaths }	25	57	62	73	219	39	18	9	21	87	10	8	17	17	52	109	38	162

TABLE XIII.

ADMISSIONS TO AND DEATHS AT THE NEWCASTLE FEVER HOSPITAL FROM 1ST JANUARY TO 31ST DECEMBER (INCLUSIVE). 1878.

DISEASES.	ADMISSIONS.													DEATHS.						
	Jan.	Feb.	Mar.	April	May	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Jan.	April	July.	Aug.	Oct.	Dec.	Total
Typhus ...	5	5	1	1	...	...	...	1	...	...	13	4	1	...	...	...	...	...	5
Enteric Fever ...	2	...	...	1	1	1	...	1	3	6	11	26	...	...	...	1	2	4	7
Scarlet Fever ...	3	4	2	...	1	...	1	...	2	...	1	14	...	...	...	...	...	...	...
Typho-Enteric Fever ...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	1	1
Continued Fever ...	...	...	...	...	...	...	...	1	...	1	...	2	...	...	...	...	...	...	...
Febricula ...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...
Diphtheria ...	...	...	...	...	...	...	2	...	...	...	...	2	...	...	...	...	...	...	...
Pneumonia ...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	1	...	...	...	1
Catarrh ...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Mania ...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...
Pyæmia...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...
Bronchitis ...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...
TOTAL ...	7	8	5	3	1	3	1	4	3	7	9	14	65	4	1	1	1	2	5	14

TABLE XIV.

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS INSPECTED DURING 1878.

PROVISIONS INSPECTED.	Amount Inspected.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justice.	Destroyed with Consent of the Owner.
Carcases of Beef..	...	117	100	17	2
Stones of Beef	20	20	...
Carcases of Veal...	...	15	7	8	8
" Mutton	93	71	22	22
" Pork	114	77	37	37
Stones of Fish	3	...	3
Mutton Pies	95	...	95	...

Of the 100 carcases of beef returned as fit for food, 20 were more or less bruised during the transit of the animals. All the bruised portions were cut off and destroyed. The 20 stones of beef was seized while exposed for sale: the butcher was summoned and fined £5 and costs.

W. HEDLEY, INSPECTOR.

TABLE XV.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH
DEPARTMENT DURING THE YEAR 1878.

20 Straw Mattresses.	11 Flock Bolsters.
9 Bed Ticks.	17 " Pillows.
2 Rabbit Down Beds.	1 Bolster Case.
16 Flock Beds.	2 Pillow Cases.

TABLE XV.—CONTINUED.

INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS.

FROM THE BOROUGH.	FROM FEVER HOSPITAL.
26 Feather Beds.	28 Beds.
24 Flock Beds.	34 Mattresses.
21 Hair Mattresses.	100 Pillows.
33 Straw "	77 Blankets.
83 Pillows.	70 Quilts.
32 Bolsters.	45 Rugs.
44 Blankets.	7 Lots of Books.
29 Quilts.	2 " Toys.
30 Pieces and 5 Bundles of Linen.	56 Bed Ticks.
25 " 4 " Wearing Apparel.	154 Pieces and 3 Lots Clothing.
17 Carpets.	

TABLE XVI.

SUMMARY OF CASES DISINFECTED BY THE INSPECTORS OF NUISANCES DURING
THE YEAR ENDED 28TH DECEMBER, 1878.

PARISH OR TOWNSHIP.	NATURE OF DISEASE.							
	Scarlet Fever.	Enteric Fever.	Typhus Fever.	Measles.	Small Pox.	Diphtheria.	Fever (other varieties.)	Total.
Elswick	51	15	2	17	...	...	2	87
Westgate	58	2	4	5	...	3	2	74
St. Andrew's	53	9	1	5	...	1	...	69
St. John's	12	1	2	...	...	...	...	15
St. Nicholas'	4	11	7	...	...	...	4	26
All Saints'	66	5	8	15	...	1	...	95
Jesmond	3	...	...	...	...	...	1	4
Byker	64	21	3	3	...	5	1	97
TOTAL	311	64	27	45	...	10	10	467

TABLE XVII.—NUISANCE REMOVAL.

SUMMARY OF NUISANCE CASES FOR THE YEAR ENDED 28TH DECEMBER, 1878.

TABLE XVIII.

SUMMARY OF PROCEEDINGS TAKEN BEFORE THE MAGISTRATES OF THE BOROUGH
BY THE SANITARY DEPARTMENT DURING THE YEAR ENDED 28TH DEC., 1878.

Nature of Complaint.	No. of Cases.	How Disposed of.	Amounts of Penalties Imposed.
Dilapidated Yards, Water Closets, Privies, and Ashpits Repaired	13	Eleven did Work and paid Costs ; one Fined 2s. 6d. and Costs ; one ordered to be done by Magistrates, and paid Costs	£ 0 s. 2 d. 6
Defective Drains ...	5	Three did Work and paid Costs ; two ordered to be done by Magistrates, and paid Costs	—
Branch Drains ...	2	Two did Work and paid Costs	—
Water Notices ...	3	Two did Work and paid Costs ; and one Fined 5s. and Costs	0 5 0
Defective Ash Closets ...	1	Did Work and paid Costs	—
Smoke Notices ...	2	One allowed One Month to have Furnace constructed, and paid Costs ; and one Dismissed	—
Offensive Accumulation Do. Trades ...	1 1	Did Work and paid Costs Ordered to be done by Magistrates, and paid Costs	—
Breach of Sanitary Bye-Laws ...	6	Two did Work and paid Costs ; one Fined 2s. 6d. and Costs ; and one Fined 1s. without costs	0 3 6
White-washing ...	9	Seven did Work and paid Costs ; one Fined 5s. and Costs ; one Fined 10s. and Costs	—
For using back premises for slaughtering Sheep without a License ...	1	Fined £1 and Costs	0 15 0
TOTAL ...	44		2 6 0

TABLE XIX.
RAINFALL, MEAN TEMPERATURE, &c.

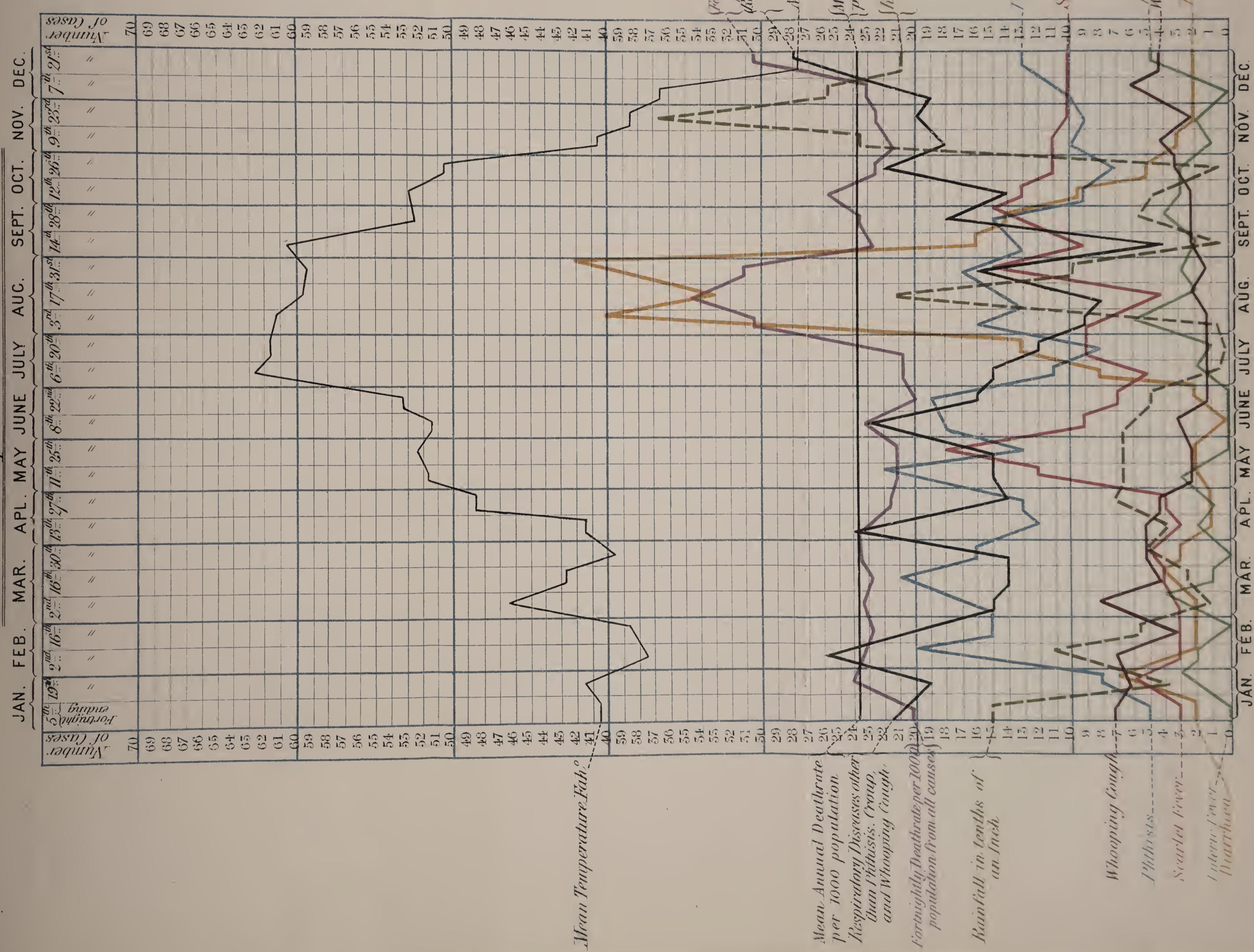
1ST QUARTER.			2ND QUARTER.			3RD QUARTER.			4TH QUARTER.		
Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.
1878.			1878.			1878.			1878.		
Jan. 5...	1.06	44.5	April 6...	0.63	39.1	July 6...	0.03	56.6	Oct. 5...	0.41	51.3
„ 12...	0.40	39.3	„ 13...	0.10	43.7	„ 13...	0.00	59.1	„ 12...	0.51	54.2
„ 19...	0.23	43.6	„ 20...	0.63	50.6	„ 20...	0.00	64.8	„ 19...	0.00	53.1
„ 26...	1.58	39.6	„ 27...	0.78	46.4	„ 27...	0.00	65.6	„ 26...	0.09	48.2
Feb. 2...	0.71	35.5	May 4...	0.22	49.4	Aug. 3...	0.10	57.3	Nov. 2...	1.31	41.6
„ 9...	0.04	41.0	„ 11...	1.07	54.5	„ 10...	3.04	59.1	„ 9...	1.02	40.1
„ 16...	1.01	36.0	„ 18...	0.77	56.7	„ 17...	1.16	60.2	„ 16...	3.25	36.6
„ 23...	0.00	46.1	„ 25...	0.50	47.8	„ 24...	0.50	58.5	„ 23...	0.40	40.4
March 2...	0.20	46.4	June 1...	0.32	50.7	„ 31...	1.46	59.9	„ 30...	1.82	37.0
„ 9...	0.07	45.4	„ 8...	0.92	52.2	Sept. 7...	0.00	61.3	Dec. 7...	0.84	35.9
„ 16...	0.40	40.5	„ 15...	0.68	50.6	„ 14...	0.03	60.1	„ 14...	1.54	25.8
„ 23...	0.00	43.3	„ 22...	0.29	55.9	„ 21...	0.41	54.2	„ 21...	0.52	29.4
„ 30...	1.00	36.1	„ 29...	0.00	68.5	„ 28...	0.64	50.8	„ 28...	0.87	27.1
TOTAL...	6.70	41.3	TOTAL...	6.91	51.2	TOTAL...	7.37	59.0	TOTAL...	12.58	41.7
	Mean.			Mean.			Mean.			Mean.	

Total Rainfall during the Year 1878 = 33.56 Inches.

Mean Temperature during the Year 1878 = 48.3 Deg. Fahr.

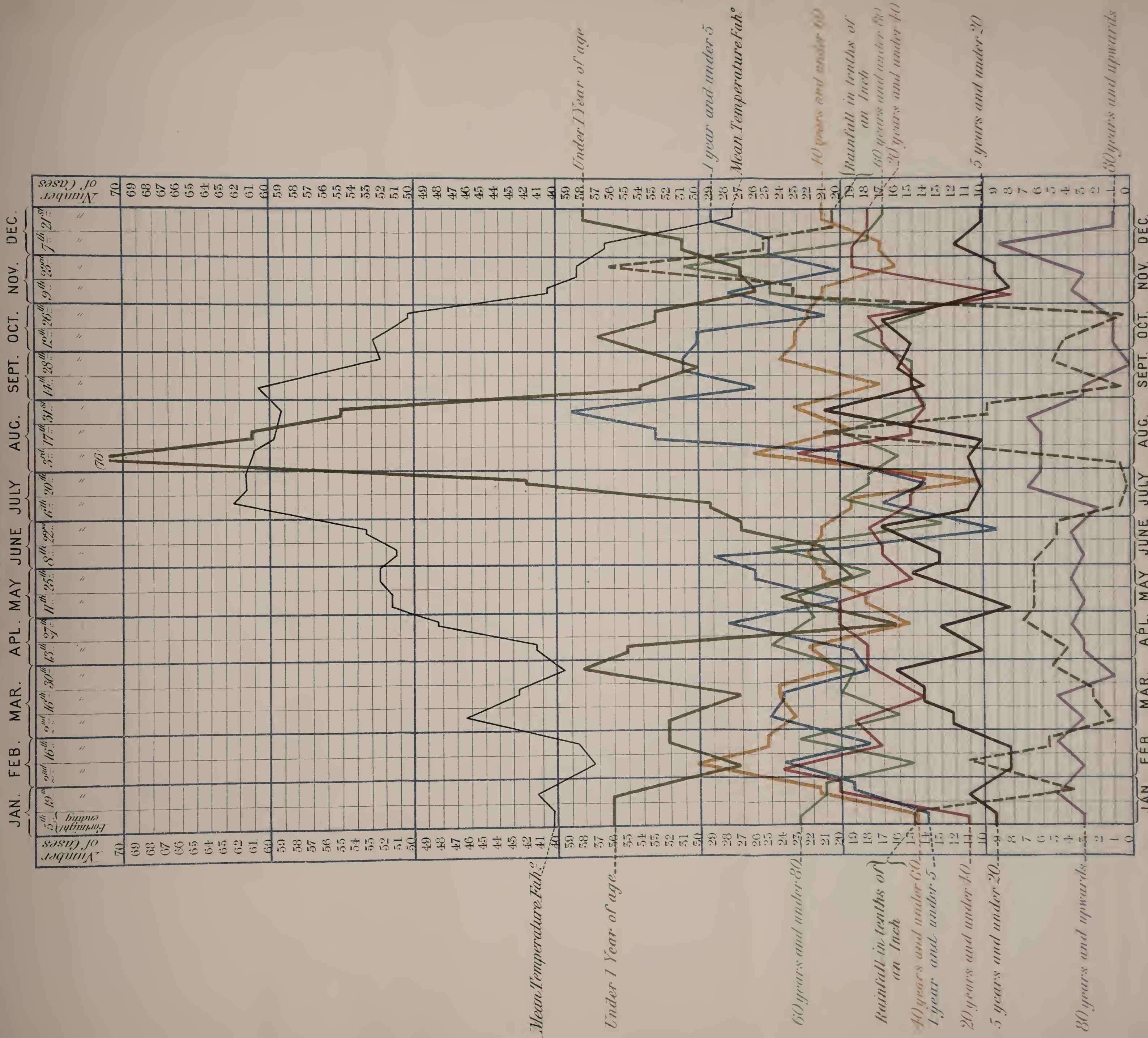
BROUGHT UPON NEWCASTLE UPON TYNE, 1878.

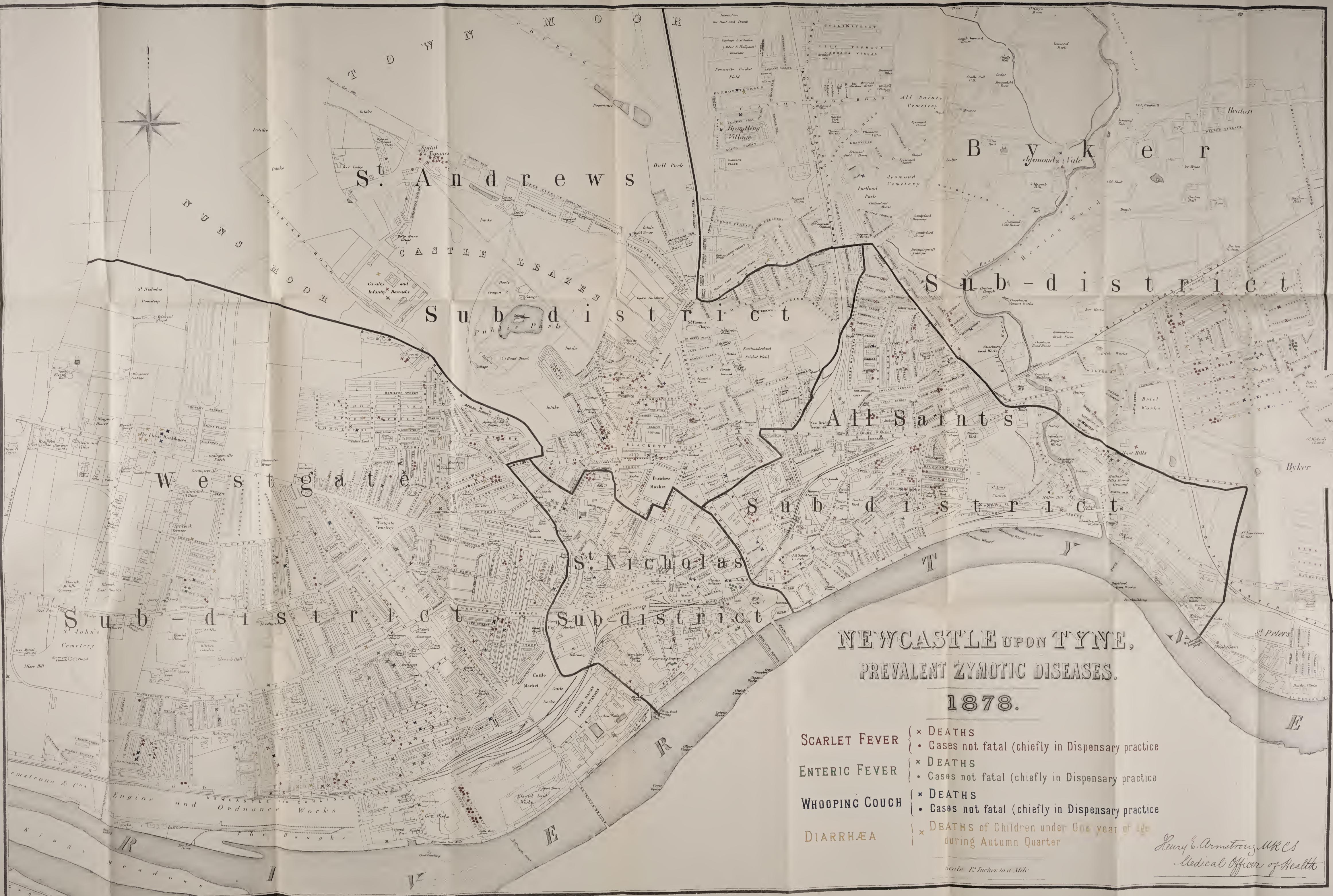
Fortnightly Diagram of Deaths from principal Zymotic Diseases and Diseases of the Respiratory Organs with Temperature and Rainfall



LIBRARY OF CONGRESS
HEWITT CASTLE
UNIVERSITY OF TORONTO LIBRARY
1878.

Fortnightly Diagram of Deaths from all causes at Seven Flat periods with Temperature

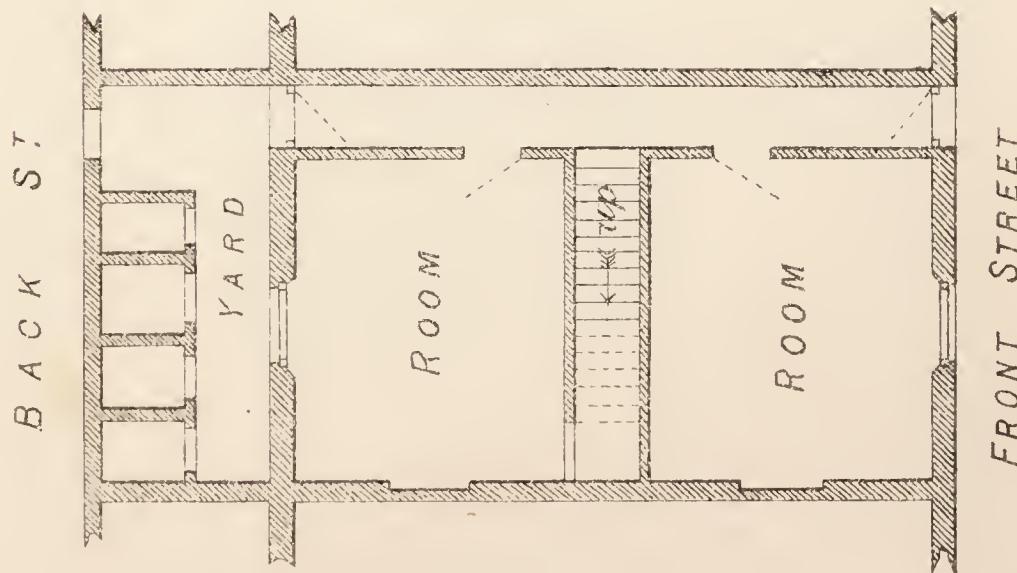






BUCKINGHAM STREET,

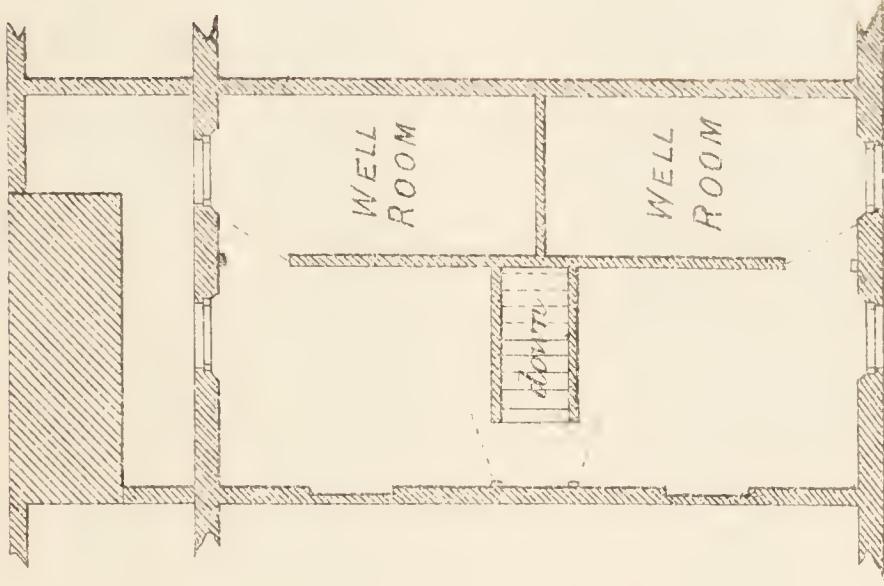
PLANS SHewing DWELLING HOUSE WITH "WELL ROOMS"



GROUND PLAN.

Scale of Feet.

12 9 8 7 6 5 4 3 2 1 0 20 40

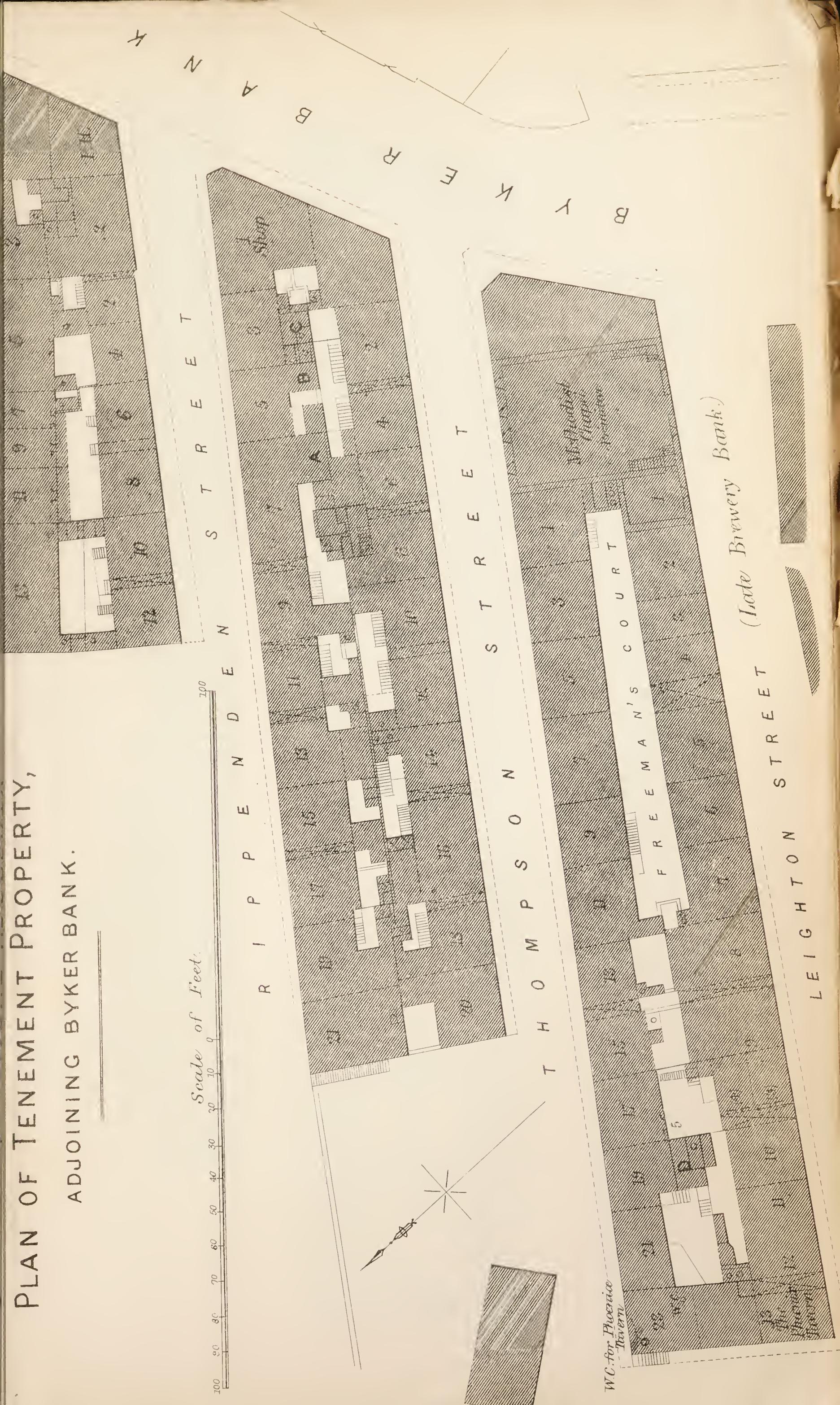


FIRST FLOOR PLAN.



PLAN OF TENEMENT PROPERTY,

ADJOINING BYKER BANK.



PLAN OF
ST. PETER'S
1879.

Scale 16 feet to an Inch.

B *O* *T* *T* *L*

H O // S E

S T R E E

